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NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION.

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THE NATIONWIDE GROWTH IN TECHNICAL EDUCATION, STIMULATED BY THE DEMAND FOR GREATER NUMBERS OF TECHNICIANS, HAS BROUGHT ABOUT TREMENDOUS NEED FOR LEADERSHIP PERSONNEL. THE PURPOSE OF THIS PROJECT WAS TO PLAN, DEVELOP, IMPLEMENT, AND EVALUATE FIVE 2-WEEK LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION DESIGNED TO PROVIDE TRAINING FOR CURRENT AND POTENTIAL LEADERS IN TECHNICAL EDUCATION. INSTITUTES WERE CONDUCTED AT COLORADO STATE UNIVERSITY, OKLAHOMA STATE UNIVERSITY, RUTGERS - THE STATE UNIVERSITY, UNIVERSITY OF FLORIDA, AND THE UNIVERSITY OF ILLINOIS WITH THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION, OHIO STATE UNIVERSITY, SERVING AS THE COORDINATING AGENCY FOR THE CONSORTIUM. THE MAJORITY OF THE 195 PARTICIPANTS FROM 46 STATES AND PUERTO RICO WERE EMPLOYED IN ADMINISTRATIVE OR SUPERVISORY POSITIONS AT THE STATE OR LOCAL LEVEL. THE PROJECT EVALUATION REVEALED THAT PARTICIPANTS REPORTED A GAIN IN KNOWLEDGE OF CONCEPTS IN TECHNICAL EDUCATION AND WERE GENERALLY SATISFIED WITH THE CONTENT AND OPERATION OF THE INSTITUTES. A MAJORITY OF THE PARTICIPANTS RECEIVED ABOVE AVERAGE SCORES IN APPLYING KNOWLEDGE GAINED DURING THE INSTITUTES, INDICATED PLANS FOR IMPLEMENTING CHANGES IN THEIR PROGRAMS, AND RECEIVED AVERAGE RATINGS BY INSTITUTE DIRECTORS FOR THEIR DEMONSTRATED LEADERSHIP SKILLS. INSTRUCTIONAL MATERIALS DEVELOPED FOR THE PROJECT INCLUDED A "COMPILATION OF TECHNICAL EDUCATION MATERIALS" AND TWO SUPPLEMENTS (VT 002 928, VT 002 930, VT 002 936). (PS)

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NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

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Calvin J. Cotrell
Project Director
and
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Project Coordinator

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THE CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION

The Ohio State University

Columbus, Ohio

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

Need for the Project

The nationwide growth thrust of technical education is apparent from data compiled in The Summary Report of Vocational and Technical Program Development by the Division of Vocational and Technical Education, Bureau of Adult and Vocational Education, U. S. Office of Education. The publication cites, for example, the millions of dollars being spent, the astronomical building programs underway, and the projections for expansion of present programs and staffs in technical education throughout the nation. The need for developing existing and emerging leaders is well documented in that publication. The National Leadership Development Institutes in Technical Education project was a system designed to meet this demand.

Pre-Planning Meeting

During the summer of 1965, Robert E. Taylor, Director of The Center for Vocational and Technical Education, The Ohio State University (the institution hereinafter referred to as The Center), and Mr. Robert Knoebel, Director of the Technical Education Unit, Division of Vocational and Technical Education, U.S.O.E., met and discussed the potential role of The Center in meeting the leadership needs in technical education. As a result of this conference, a select group of vocational and technical educators was invited to a conference at The Center on August 27, 1965, to explore means to assist the states and the nation in the further development of technical education. (See list of participants in Appendix A-1.)

The committee's deliberations considered all the needs in technical education which included such priority areas as administrative and supervisory training, teacher education, curriculum development and facilities planning. After considering the various ways of making the greatest impact on the improvement and expansion of technical education in a short period of time, the committee recommended the implementation of a series of two-week leadership development institutes geographically dispersed to blanket the nation. A program similar to the administrative training clinics conducted by Dr. Maurice Roney of Oklahoma State University was suggested.

Several technical educators were identified by the participants at the Pre-Planning Meeting and were recommended for service on a 12 to 15 member committee to assist The Center in planning the institutes.

Purpose of the Project

The purpose of the project was to plan, develop, implement, and evaluate five two-week leadership development institutes in technical education. These institutes were to be designed to provide training for present and potential leaders who, then, would conduct state and locally sponsored leadership training activities, thereby achieving a "ripple effect" from the project to impact on a long-range improvement and expansion effort in technical education throughout the nation.

Objectives

Specific objectives of the project were:

1. To provide a training program to improve program planning, development, implementation and evaluation skills of present and prospective leaders in technical education.

2. To stimulate and strengthen the long-range interests of institutions of higher education in research and leadership development activities in technical education.

3. To provide evidence for the evaluation of two-week institutes as an administrative tool for accelerating the development of leadership for technical education.

4. To provide data for assessing the effectiveness of the consortium approach to a project wherein one institution coordinates the planning, funding, development of instructional materials, operation, and evaluation of a training program offered by several cooperating institutions.

Description of Project Organization

The National Leadership Development Institutes in Technical Education project was organized as a national consortium of the following institutions: Colorado State University; University of Florida; University of Illinois; Oklahoma State University; Rutgers - The State University; and The Center for Vocational and Technical Education, The Ohio State University.

The Center served as the coordinating agency for designing the program, obtaining funds, preparing the core of institute staff, recommending consultants, collecting, preparing and disseminating instructional materials, recruiting and selecting participants, evaluating the institutes, and preparing the final report.

Each of the five cooperating institutions sponsored one two-week institute with a pre-established leadership training program for forty participants, thereby offering training for 200 persons.

Structure of the Report

An explanation of the organization and the structure of the Procedures, Results, and Discussion sections of this report is presented in the following. The Procedures section of the report is concerned primarily with reporting the major activities of the project. Following the description of each procedure, when it is appropriate, there is a presentation of the outcomes, highlights, strengths, and weaknesses of the activity. However, the one exception to this pattern is the treatment of the project evaluation activity which was of such magnitude that the typical research reporting format was used. Consequently, the Procedures section contains only the description phase of the project evaluation activity; the Results section presents the outcomes of the evaluation; and the Discussion section contains the interpretation of the results.

PROCEDURES

The Procedures section of this report begins with a description of the Planning Committee efforts, which launched the institutes. It then presents other project activities in a chronological order, insofar as possible, until it ends with a description of the development of supplemental instructional materials, which was the last project activity.

Planning Committee Meeting

On November 15 and 16, 1965, a conference was held at The Center for Vocational and Technical Education, The Ohio State University, for the purpose of planning the proposed project for leadership development institutes in technical education. The most capable national, state, and local leaders in technical education were selected for service on the Planning Committee. The members of the Committee are listed in Appendix A-2.

Through the conference discussion and problem-solving sessions, the Committee assisted The Center staff in developing the following:

- A topical outline of the instructional program of the institutes (Appendix A-4)
- A tentative daily schedule for the institutes
- The personnel requirements
- Budgets for the institutes
- Criteria for participant selection
- Tentative evaluation procedures

The conference was successful in generating ideas and materials to assist The Center staff substantially in the preparation of an operational plan for the project, as well as in the preparation of the proposal for funding the project. The success of this Committee's efforts is indicated by the fact that the project was approved for funding on April 20, 1966.

Determining Instructional Materials Required

The Center for Vocational and Technical Education provided the coordination and functioned as a clearinghouse for cooperatively designing, financing, and preparing the instructional materials. It also served as a centralized point for disseminating information and instructional materials.

Dr. Lynn A. Emerson, Technical Education Consultant, was employed by The Center on January 31, 1966, to develop a priority list of instructional materials to be used in the institutes.

The institute directors, The Center staff, and consultants met in Chicago, Illinois, on March 17, 1966, to review the proposed list of instructional material needs which was developed by Dr. Emerson (Appendix B). It was agreed by all persons attending the meeting that Dr. Emerson should develop as many of the priority items as possible within the time limitations. In a subsequent meeting at The Center, Dr. Emerson and The Center staff agreed upon the tasks that each would perform to develop and obtain the desired instructional materials.

Preparation of Instructional Materials

Dr. Emerson, working with the Vocational Curriculum Laboratory of Rutgers - The State University, and Dr. Milton E. Larson, Adviser, The Department of Vocational and Technical Education, developed, and/or reproduced the following instructional materials for the institutes:

1. A Compilation of Technical Education Materials which provided a common core of instructional materials for the staff and participants of the five institutes. The compilation included lithographed copies of all materials prepared for staff members of the institutes, i.e., transparencies, charts, tables, and graphs which could be reproduced by the participants and used as instructional aids in future leadership training activities.

2. A set of six wall charts and twenty-three transparencies, which were provided for the staff of each of the five institutes.

The Center staff prepared and assembled the following:

1. A technical education guidance film-strip and record entitled, "Your Future Through Technical Education," produced by Guidance Associates of Pleasantville, New York, for the Guidance and Testing Services, Division of Vocational Education, State Department of Education, Columbus, Ohio, was provided for each institute.

2. A Bibliography on Technical Education was prepared for distribution to the participants of the institutes. A copy of the revised bibliography appears in Part V of the Compilation of Technical Education Instructional Materials, Supplement I, New and Revised Informational Resources.

3. State department of education and institutional materials on technical education were obtained from state directors and selected institutions offering technical education.

To obtain the materials developed by state departments of education and technical education institutions, letters were sent on May 3, 1966, to the state directors of vocational education of each of the selected states and to chief administrative officers of each of the selected local institutions, requesting the contribution of publications and other materials which would be useful in the institutes. Appendix D includes a copy of the letter sent to state directors and local administrators and lists of the materials requested. The resources collected were sent to each of the cooperating institutes to be used as library and instructional materials.

Additional teaching aids would have been desirable, but several time limitations handicapped the development and procurement of the instructional materials; however, the institute directors and staff were pleased with those materials which they received. The project staff members learned that the development of instructional materials is a difficult and time-consuming task, and they were very grateful for the services of those who assisted and cooperated in the effort. For future projects of this nature, it would be essential to arrange for approximately three more months of time, prior to the institutes, for instructional materials preparation.

Recruitment of Participants

The recruitment effort consisted primarily of the announcement of the leadership development institutes through contact by mail and selected media.

Materials prepared and used in contacting prospective participants and announcing the institutes via the U. S. Mail service consisted of a brochure, an application form, and a recommendation sheet. These materials were prepared by The Center staff, reviewed by the institute directors and representatives of the U.S.O.E., Division of Vocational and Technical Education, revised, and then duplicated.

The first announcements were mailed to state directors of vocational and technical education with a memorandum asking each director to nominate participants from his state (Appendix C-1). Within three days after the state directors were contacted, the announcement package including the brochure, application form, and recommendation sheet was sent to approximately 1,000 head state supervisors and teacher educators for all vocational and technical education services. At approximately the same time, 1,425 members of the American Technical Education Association were sent the announcement package. Dr. William Fenninger, Executive Secretary of the A.T.E.A., arranged for the mailing envelopes to be addressed through the addressograph service provided for that Association by the Delmar Publishing Company. Announcements were also sent to the chief administrative officers of 850 institutions listed in the Technician Education Yearbook and to prospective participants who made inquiry by mail and telephone. A total of approximately 3,400 persons received the set of materials in the recruitment effort.

Announcement of the institutes was also achieved through the following media:

- The U. S. Office of Education, Division of Vocational Technical Education Circular Letter.

- The American Technical Education Association Newsletter.

- The Centergram publication of The Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio.

Members of the Division of Vocational and Technical Education staff of the U. S. Office of Education and Regional Field Offices assisted the recruitment effort by announcing the institutes at various national conferences and regional meetings.

The brochure, application form, and recommendation sheet, prepared for announcing the institutes and recruiting participants, may be examined in Appendix C.

The recruitment effort resulted in 403 applications (Appendix C-6) being sent to the Admissions Committee. A very limited response was received from state directors; in fact, only eight sent nominations.

The announcement procedure began on April 3, 1966, the day after the Congressional representative's public announcement of the project approval. However, this beginning date was at least one month later than the time recommended by the institute Planning Committee. It is believed that many highly qualified potential participants did not have adequate time to obtain information and apply. This statement is supported by numerous letters of inquiry which were received by the Admissions Committee after enrollment was closed for all five institutes.

The very limited number of nominations received from state directors of vocational and technical education may have resulted from the short period of time for their response prior to selection of participants, which began on April 26, and the fact that the directors were extremely busy with other problems, especially after April 15. It should be mentioned, however, that excellent cooperation was received from the state directors in the completion of recommendation sheets required of each candidate.

Except for a tendency on the part of some applicants to misinterpret Item Six of the application form, the instrument served the purpose for which it was intended. While the recommendation sheet was completely satisfactory, a quick check rating scale would probably be less time consuming for administrators to complete and be just as effective.

The announcement package and centralized recruitment conducted by the coordinating institution proved to be very productive even though the time available to conduct the recruitment process was limited. An additional month or more for recruiting participants would be desirable for future institutes.

Participant Selection

The Admissions Committee, consisting of institute directors, Center staff, and a representative from the U. S. Office of Education, Bureau of Adult and Vocational Education, Division of Vocational and Technical Education, met in Chicago, April 26, 1966, reviewed the applications, and selected the participants and alternates for the five institutes. Preference was given to state staff members, teacher educators, and other applicants having high leadership responsibility or potential as indicated by recommendations from their state directors and other administrative superiors. Consideration was also given to maintaining balance and diversity in each of the institutes with regard to representation of participants in terms of geographical mix, field of vocational or technical education specialization, and the nature of the participants' current positions in vocational and technical education.

There were more than twice as many applications (403) as openings (200) for institute enrollment. The number of applicants, however, did not complicate the process as much as other items, such as travel costs in arranging the geographic mix, and the problems encountered in arranging for a balance in representation by vocational service, position, or duties. Four sets of biographical data cards were prepared and sorted to facilitate the selection process. While the process of using the data cards was very successful, it was extremely time consuming to prepare the cards (one original and three carbons) with a typewriter and to complete the sorting by hand. For future institutes, IBM cards could be punched, sorted, and print outs obtained by electronic data processing for each criterion in the selection process.

The institute directors and The Center staff were very pleased with the centralized participant selection process. The greatest problem in the selection procedure was the manipulation of applications for the four institutes held June 6-17. A great number of applicants could not be considered for these institutes because of scheduled duties or commitments conflicting with the June dates. Future summer institutes should be conducted in July and August to avoid conflicts with the prospective participants' institutional commitments in June. Furthermore, the months of April and October should be given serious consideration for institutes designed primarily for state staff members.

Because of problems not anticipated at the time applications were received, some of the initially selected participants had to be replaced by alternates. No attempt was made to analyze the biographical data of the applicants who were not selected as participants. However, detailed treatment of the biographical data of applicants selected as participants is presented in the project evaluation part of this report under Description of Participants.

Development of Evaluation Procedures and Instruments

The process of developing evaluation procedures and forms was guided by the following primary objectives as stated in the contract:

1. To establish a biographical data base concerning leadership personnel in technical education.

2. To measure the success of the institutes relative to established criteria.

Under the primary objective of establishing a biographical data base on technical education leadership personnel, several specific objectives were stated, and these were:

1. To describe the present state of technical education leadership personnel in the United States.

2. To provide a data base to guide institute directors in the operation of their respective institutes.

3. To provide a data base for evaluating future leadership development institutes in technical education.

4. To provide data to serve as independent variables in the analysis of the success of the proposed institutes.

Probably the most important objective of evaluation was that of measuring the success of the institutes relative to established criteria. The proposal states that success would be measured in terms of:

1. Participants' gain in knowledge acquired from the institutes.

2. Satisfaction of participants and directors with the content, presentations, and operation of the institutes.

3. Ability of participants to apply knowledge gained from the institutes.

4. Leadership skills demonstrated by participants through participation and involvement in the institutes.

5. Ability of participants to utilize knowledge gained from the institutes for program planning and implementing change.

The aforementioned were the major and supporting objectives of evaluation which guided the development of evaluation instruments and procedures.

When the original Planning Committee met, ideas concerning evaluation were generated; and many of these ideas became objectives, as listed above, and were included in the final research proposal. When the proposal was approved and became the contract, the institute directors, a representative of the U. S. Office of Education, and members of The Center staff met in Chicago and reviewed the evaluation procedures stated in the contract. At this meeting, various alternative procedures for evaluating the institutes, in keeping with the contract, were reviewed and discussed.

The institute directors emphasized the importance of three major considerations, other than objectives, as alternative evaluation plans were considered, and these were:

1. The need to hold to a minimum the amount of time consumed by evaluation activity.

2. The need to hold the number of interruptions and distractions to a minimum.

3. The need to conduct a meaningful and practical evaluation by monitoring the sessions of each institute daily to improve the activity during the two weeks and generate information which would assist in planning future institutes.

After discussing alternatives with persons involved in the meeting in Chicago, proposed instruments and procedures for evaluation were prepared by Center staff members and were reviewed by a number of competent technical educators, a representative of the U.S.O.E., the institute directors, associate directors, and consultants. Hence, considerable support exists for the content validity of the instruments since they were reviewed by many qualified persons. The final forms were then printed and distributed to the institutes.

Description of the Evaluation Instruments

Instruments were developed in keeping with the first two primary objectives of the institutes which were: (1) the establishment of a data base and (2) the evaluation of the operation of the institutes. The first instrument was developed to facilitate the establishment of a data base as well as to facilitate participant selection; the other six instruments were developed to achieve the second objective.

Participant's application and confidential recommendation sheet.--The application form (Appendix C-3) solicited the name, address, present position title, and present position duties of the applicant; professional and non-educational employment record; educational background; and long-range goals of the applicant. In addition, it requested that the applicant have his local chief administrative officer and chief state official for technical education complete the confidential recommendation sheet. The application and recommendation sheet are both included in Appendix C of the report.

Participant's self-appraisal.--The participant self-appraisal form (Appendix E-1) was developed to be used as a pre-test and post-test evaluation instrument. This scale requested participants to assess their knowledge of selected topics at the beginning of the institutes and again at the end of the institutes. Each participant was asked to appraise his knowledge of selected technical education topics by using a five-point scale in which a rating of one meant that he did not feel very knowledgeable concerning the topic and a rating of five meant that he felt very knowledgeable concerning the topic. This instrument was developed to assess the gain in knowledge acquired by the participant from the institute--one of the stated objectives of the evaluation.

Participant's evaluation of major topics.--The instrument for participant evaluation of major institute topics (Appendix E-5) was developed to measure the extent to which participants were satisfied with the content, presentations, and operation of the institutes. The instrument requested each participant to rate each of the major topics on the outline of content to be covered in the institute. Participants rated the value of the content and the quality of the presentations on five point scales where one indicated a very poor rating and five a very good rating. The instrument also provided space for the participants to state new concepts they had gained, what additional information they would have desired, and what changes they would suggest for sessions on similar topics in future institutes. Participants were asked to complete one of these instruments after the completion of each of the major topics covered in the institutes.

Evaluation of major topics by institute directors.--The evaluation of major topics by institute directors provided a second indicator of the degree of satisfaction with the content, presentations, and operation of the institutes. This form (Appendix E-6) served as a record of the institute directors' evaluations of each of the major topics of the institutes.

The directors of each of the institutes rated each topic with the instrument, and these ratings were submitted with the final report to the coordinating agency. These instruments helped to identify some of the better consultants and resource people and provided information about the adequacy of the coverage of each topic.

Participant's problem solution.--One objective of the evaluation of the institutes was to determine the participant's ability to apply the information which he gained from the institute; thus, a hypothetical problem was presented to which the participant had to develop a solution. The problem description (Appendix E-7) told the participant to assume that he had been appointed head of technical education in a new school which was to be planned and built. The problem statement provided certain given information which described the limitations within which the participant could work in arriving at a solution to the problem. The participant was asked to identify leadership tasks which would be his responsibility in getting the technical education program successfully started and to indicate his approach to implementing his plan, both immediately and over the long-term period. Each participant completed the problem, and the institute staff evaluated the problems and rated each participant's solution. The scores on the assigned problem ranged from one to five, with one being the lowest score and five being the highest score.

The appraisal of the participants by the institute directors.--Consistent with the objective of evaluating the leadership skills demonstrated by participants through participation and involvement in the institutes, an instrument (Appendix E-8) was developed for use by institute directors in the appraisal of the leadership skills which each participant demonstrated during the two-week period. The factors which were used to appraise leadership ability of the participants were:

1. Communications ability
2. Quality and quantity of contributions made to the institute
3. Human relations ability demonstrated

Participant's plans and objectives.--Consistent with the stated objective of determining the participant's ability to utilize knowledge gained from the institute for program planning and implementing change, participants were asked to respond to a broad question about their plans for implementing what they learned at the institute and about their plans for changing their programs as a result of participating in the institute. This instrument (Appendix E-9) asked the participant to include in his answers his plans for conducting or extending leadership development activities in his home state and his desires and plans for furthering his professional education and training. Scores on this instrument were analyzed and interpreted as indicators of the success of the institutes. However, the primary use of the data obtained from this instrument will be in the follow-up of the participants to determine to what extent they have, in fact, put in practice some of their plans, and to what extent they have reached some of their stated objectives.

Description of the Procedures for Evaluation

After the evaluation instruments had been developed in conformance with the original objectives and restrictions, procedures for conducting the evaluation during the operation of the institutes had to be developed. These procedures (Appendix F) stipulated when and how each evaluation instrument was to be administered. On the first day of the institute, the institute directors introduced the idea of evaluation and clarified its purpose. Also, during that same day, the participant's self-appraisal was administered as a pre-test. The participants were asked to mark their answers on an IBM card, and the instruments and cards were collected. Then, throughout the remainder of the institute, participants and directors completed a topic evaluation instrument at the completion of each of the major topics covered in the institutes. These were collected immediately after they were completed by the participants and reviewed daily. The problem to be solved by each of the participants was administered sometime during the first week of the institute as part of the instructional program and was collected by the directors near the end of the second week of each institute. Also, during the second week of the institute, on Wednesday, the instrument entitled, "Participant's Plans and Objectives," was distributed to all the participants, and they were instructed to complete the instrument at their leisure and turn it in on the last day of the institute. Finally, on the last day of the institute, the participant's self-appraisal form was administered again as a post-test.

Review of Evaluation Forms and Procedures

A review of the evaluation activity for the institutes indicated the evaluation forms and procedures were appropriate for the training project. The procedures complied with the originally stated objectives of the evaluation and the restrictions which were added in planning for the evaluation. Measures were obtained relative to each of the stated objectives, and interruptions and time consumption were held to a minimum. More sophisticated measurement techniques might have been employed, e.g., a multiple-choice achievement test rather than a self-appraisal scale. However, the objectives of the institutes were quite broad and the time period for the institutes rather brief, both of which tended to make impractical the use of an achievement test. In fact, the evaluation procedures probably could have been improved by making them even more simple. For example, every instrument which asked open-ended or essay questions probably could have been improved by providing a self-coding rating scale. This change would have reduced the time required for responding and the coding time required for processing the data. These possibilities for improvement should be considered in future institutes.

Final Planning Meeting with Institute Directors

The final planning conference, involving the institute directors, associate directors, consultants, and Center staff, was held at The Center, May 18-19, 1966. At this meeting, the instructional materials, which had earlier been specified by this group, were presented for their review. The evaluation forms prepared by The Center staff were presented and critiqued. The group also developed a common certificate (Appendix J) for participants, reviewed the duties of the recorder-evaluators, and finalized the procedures for operating and evaluating the institutes.

The meeting was successful in preparing the institute staff for the use of instructional materials, and it was extremely valuable in helping to refine the evaluation procedures and instruments. The meeting was helpful in promoting communications within the consortium, and it improved the operation of the institutes.

Selection and Preparation of Recorder-Evaluators

The recorder-evaluators were graduate students selected by each institute director to assist with the administration of the institutes by recording activities and collecting data to be used in evaluating each institute and the project.

On June 1, 1966, an orientation and training conference for the recorder-evaluators was held at The Center and conducted by The Center staff. The duties of the recorder-evaluators and the instruments and procedures for collecting and recording data for the evaluation of the institutes were presented and discussed.

Printed materials containing the duties and instructions which were provided the recorder-evaluators as the uniform system to use in performing their duties may be examined in Appendix F.

The quality of individual institute reports and the data collected with evaluation instruments reflect the success of the selection and training process for the recorder-evaluators. The Center project staff and institute directors were very pleased with the performance of the recorder-evaluators.

There was a deviation from the original project plan which called for an exchange of recorder-evaluators within the five institutes. This was not possible due to scheduling conflicts between institutes and personnel; however, this change was not detrimental to the operation or the evaluation of the institutes.

The cooperating institutions did not follow the original summary report format. However, the project director accepts the full responsibility for the poor communications which resulted in the inconsistency of the summary reports. Although it was not a serious handicap, the difference in reporting resulted in some difficulty in developing instructional materials based upon the content of the summary reports.

Operation of the Institutes

The leadership development institutes were conducted at the following universities on the indicated dates:

- Colorado State University, July 11-27, 1966
- Oklahoma State University, June 6-17, 1966
- Rutgers - The State University, June 6-17, 1966
- University of Florida, June 6-17, 1966
- University of Illinois, June 6-17, 1966

The instructional program.--Each of the institutes covered the following major topics from the course outline (Appendix A-4) which was agreed upon by the institute directors and developed by the Planning Committee:

- The Leadership Role and Charge
- The Rationale and Need for Technical Education
- Description of the Technical Education Student
- Administrative Structure of Technical Education
- Program Patterns and Curriculum Development

- Facilities and Equipment for Technical Education
- Staffing Technical Education Programs
- Financing Technical Education
- Supervision of the In-Service Education Program
- Establishing Research and Development Needs

There was no prescribed order or method of presentation of the topics, and each institution varied the order of topics to comply with its schedule of consultants and other local considerations. A detailed program for each institute is provided in Appendix G.

Methods and techniques.--In most instances, major presentations by consultants were followed by activities such as small group discussions, brain-storming sessions, participant led discussions, symposiums, participant panels, individual assignments for participants, and committee work. Visual aids were used extensively in all institutes. Consultants and resource persons were drawn from education, industry, and government.

Daily schedule.--The institutes were scheduled to begin at 9:00 a.m. on Monday of the first week and to end at noon on Friday of the second week. A typical daily schedule for participants was as follows:

7:00 - 9:00	Breakfast, individual preparation, special interest group assignment activities
9:00 - 10:30	Lecture or formal presentation by resource people
10:30 - 12:00	Group discussion with resource persons of various sessions present
12:00 - 1:00	Lunch
1:00 - 3:00	Group discussion led by institute director and usually with a person or specialist other than the morning speaker present
3:00 - 4:30	Special interests group activity period--may involve group discussion, group effort on structuring a report, preparing an item of material to be added to institute resources
4:30 - 5:30	Free time, group recreation, individual consultation with the host institution staff specialist
5:30 - 7:00	Dinner
7:00 - 9:30	Library study, small group conferences with staff

The participants' schedule was well organized. The institute staff met each evening to review each of the presentations and the day's activities, and to review plans for the next day.

Institute staff.--In general, the institutes were staffed with a director, assistant-director, recorder-evaluator, selected consultants, and clerical personnel. A detailed staffing summary for the institutes is presented in Appendix H.

Attendance.--The institutes served 195 participants (191 men and 4 women) from 46 states and Puerto Rico.

The Colorado Institute had a total of 36 participants representing 21 states. In addition, one Canadian observer attended this institute. (The airline strike prevented four participants from attending the Colorado Institute.) The Oklahoma Institute had a total of 40 participants representing 25 states. The Rutgers Institute had a total of 39 participants from 26 states and also one Canadian observer. The Florida Institute had a total of 40 participants representing 23 states. The Illinois Institute had a total of 40 participants representing 23 states.

In all institutes, a certificate of attendance (Appendix J) was given each participant who completed the two-week institute. A detailed list of participants is presented in Appendix I.

The dates for the five institutes were chosen to offer a time schedule that would be convenient for the cooperating universities in terms of housing, staff, and facilities; however, many applicants either preferred or were limited to the July date because of conflicts with their professional duties and institutional schedules.

Evaluation.--The institute evaluation procedures (Appendix F) proved to be satisfactory to participants and institute directors and caused little confusion or delay in the operation of the institutes. The recorder-evaluators implemented the plans for recording and evaluating each institute and summarized the activities of the institutes in reports sent to the coordinating agency.

Members of The Center staff visited four of the five institutes during their operation. This resulted in an exchange of information about the operation of institutes and was valuable in the project evaluation and in planning future leadership development institutes.

Project Evaluation

The project evaluation was both objective and subjective in nature and was based primarily upon the number one objective of the project as stated in the Introduction of this report. The evaluation was designed to determine the participant's:

- Gain in knowledge acquired from the institute
- Satisfaction with the content, presentations, and operation of the institute
- Ability to apply knowledge gained from the institute
- Leadership skills demonstrated through participation and involvement in the institute
- Ability to utilize knowledge gained for program planning and implementing change

Data used in evaluating the institutes were collected from the five participating institutes and were derived from the instruments listed below:

- The application form for participants (Appendix C-3)
- The participant's self-appraisal form as a pre-test and post-test (Appendix E-1)
- The topic evaluation form completed by participants (Appendix E-5)
- The problem to test participant's ability to apply knowledge gained (Appendix E-7)
- The participant's leadership rating form (Appendix E-8)
- The form for participant's plans and objectives (Appendix E-9)

Electronic data processing equipment was used in the data reduction. The programs selected to process the data were determined by analyzing the previously stated objectives for the project evaluation. Description of electronic data processing programs and the procedures (including the variables considered) are presented in the following paragraphs.

Description of participants.--The biographical data, which were collected on participants through the application form and which provided independent variables in the project evaluation, were analyzed to obtain a description of participants in terms of:

- Regional representation
- State representation
- Institutional classification
- Present position classification
- Age grouping

- Vocational service area

- Highest degree earned

- Non-educational work experience (years)

- Professional education work experience (years)

Participant's gain in knowledge.--To obtain a measure of the participant's gain in knowledge, for each classification group in the Participant's Self-Appraisal (pre-test and post-test), a frequency count and a percentage response for each response level for each question was requested. A comparison of the responses of participants between the two test administrations (pre-test and post-test) to the same question was also obtained. The Ohio State Questionnaire Analysis was used and included:

- A comparison for each item on the questionnaire, the mean answer of both groups, and the difference of the means

- The Kolmogorov-Smirnov Statistic

- The Chi-square approximation and significance level for each item

The following kinds of scores were obtained by processing data from the instrument designed to measure participant's level of self-confidence regarding knowledge of technical education:

- Summary of the average pre-test scores for the institute

- Summary of the average post-test scores for the institute

- Participant's average gain in raw score points by item from pre-test to post-test (participant's self-appraisal) by vocational service area

- Average gain score by item from pre-test to post-test (participant's self-appraisal) by institute

- Average percentage of gain by participants from pre-test to post-test (participant's self-appraisal) by institute

- Average percentage of gain by highest degree earned

To obtain other evaluation data, which served as independent variables in the analysis, the following kinds of participant scores were summarized:

1. Participant's evaluation of institute topics--The participant's evaluations of nine major topics presented in the institutes.

2. Participant's ability to apply knowledge gained--The institute director's evaluation of the participant's solution to the problem which he had been assigned.

3. Participant's leadership abilities--The institute director's ratings of individual participants in each institute which represented the opinion of the director relative to the participant's leadership ability.

4. Participant's plans and objectives--The participant's scores on plans for implementing what he learned in the institute and his future ultimate professional objectives.

Investigation of relationships.--The data were analyzed to investigate possible interesting relationships. Chi-square and contingency coefficient were calculated to examine several meaningful combinations of dependent and independent variables. The program selected for this investigation was the Bio-medical Program for Chi-square (BMD 080). Output of this program included:

- Frequency tables for all combinations of variables
- The Chi-square values and the degrees of freedom for each table
- The mean, standard deviation, and correlation coefficient for each pair of variables

The 16 variables selected for the investigation were arranged in 40 independent and dependent variable combinations (Appendix K) with the first 11 serving as independent and the last five serving as dependent variables. The variables were:

- Participant's pre-test score
- Institute
- Participant's age
- Service area of participants
- Non-educational work experience classifications
- Participant's institution classifications
- Participant's present position title
- Years of service in present position
- Professional education work experience in years
- Number of years for non-educational work experience

- Highest degree earned
- Topic evaluation (nine major topics) by participants
- Percentage of gain by participants
- Participant's score on the assigned problem
- Participant's plans and objectives
- Participant's leadership abilities

Review of evaluation.--A meeting to review and interpret the project evaluation was held at The Center on October 10 and 11, 1966. The meeting was attended by the institute directors, the recorder-evaluators, a representative from the Division of Vocational and Technical Education, U. S. Office of Education, and The Center staff concerned with the project. The institute directors and recorder-evaluators reviewed the institute evaluation results which had been prepared by the project staff. These included all of the findings of the data analysis and reduction previously described in this section of the report. A copy of the program for the evaluation meeting and a list of participants are included as part of Appendix L of this report. Although the evaluation of the consortium effort is part of the long-range evaluation of the project planned for October 1967, and not part of this contract, facets of The Center's role as the coordinating institution for the consortium were also reviewed.

Preparation of Additional Instructional Materials

Through the experience of the institutes and the project evaluation meeting, the institute directors and Center staff identified instructional resources which were needed but not incorporated in the original Compilation of Technical Education Materials.

The Project Evaluation Committee recommended that additional instructional material be prepared and distributed to the institute participants and staff for use in conducting future state and locally sponsored leadership development institutes in technical education.

In compliance with these suggestions, two supplements for the original Compilation were prepared. Supplement I, New and Revised Informational Resources consists of the following commissioned papers and other materials:

1. Four papers as follows:
    a. "Administrative Patterns in Technical Education" by Dr. Lynn A. Emerson
    b. "Facilities Planning for Technical Education Programs" by Dr. Milton E. Larson

    c. "The Evaluation of Technical Education Programs" by Mr. Lucian Lombardi and Mr. Carmelo Greco

    d. "Financing Programs of Technical Education" by Dr. Joseph T. Nerden

2. A technical education bibliography which was compiled by David L. Larimore

3. New and revised informational resources which were prepared and compiled by Ivan E. Valentine

Supplement II, Institute Presentations is a compilation of presentations by outstanding educators and industrialists who served as consultants for the five institutes.

The collection and preparation of these materials was a time-consuming but rewarding task. While it is too early to assess the value of these materials, the project staff and the members of the coordinating institution are confident that these informative resources will fill some of the voids that exist in the literature and assist with future leadership development efforts in technical education.

RESULTS

The results of the project evaluation are organized in the same order and under the same headings used in reporting the evaluation activities in the Procedures section of this report.

Description of Participants

Regional representation.--Table 1 indicates the distribution of participants in attendance at the five National Leadership Development Institutes in Technical Education and the number of individuals assigned alternate status for attendance by the Department of Health, Education, and Welfare regions. The attendance ranged from a high of 47 from Region V to a low of 7 from Region VIII. The average attendance by region was 21.66. The number of applicants given alternate status ranged from a high of 37 for Region IX to a low of 10 for Region VIII. An average of 21.8 individuals per region were given alternate status.

TABLE 1

REGIONAL DISTRIBUTION OF PARTICIPANTS
AND ALTERNATES

	Number of Participants in Attendance	Number of Applicants Given Alternate Status
Region I	8	15
Region II	17	26
Region III	26	21
Region IV	26	22
Region V	47	38
Region VI	24	16
Region VII	17	12
Region VIII	7	10
Region IX	23	37
TOTALS	195	197

State representation.--Table 2 shows the distribution of participants who attended the 1966 National Leadership Development Institutes in Technical Education by state and territory. The examination of geographic mix of participants illustrated in Table 2 indicates that all states were represented with the exception of Idaho, Maine, Nebraska, North Dakota, and Wyoming. The number of participants by state ranged from 14 for Wisconsin and Florida to a low of one for Alaska, Arkansas, Delaware, Hawaii, Maryland, Montana, Nevada, New Mexico, Puerto Rico, Rhode Island, and Vermont. The average attendance by state was 4.2 individuals, and this provided for a favorable representation by the majority of states.

TABLE 2

GEOGRAPHICAL DISTRIBUTION OF PARTICIPANTS BY STATE

State	Number of Participants	State	Number of Participants
Alabama	3	Nevada	1
Alaska	1	New Hampshire	2
Arizona	4	New Jersey	7
Arkansas	1	New Mexico	1
California	5	New York	4
Colorado	4	North Carolina	13
Connecticut	2	North Dakota	0
Delaware	1	Ohio	8
Florida	14	Oklahoma	4
Georgia	2	Oregon	3
Hawaii	1	Pennsylvania	5
Idaho	0	Puerto Rico	1
Illinois	11	Rhode Island	1
Indiana	3	South Carolina	3
Iowa	5	South Dakota	4
Kansas	7	Tennessee	2
Kentucky	2	Texas	6
Louisiana	5	Utah	2
Maine	0	Vermont	1
Maryland	1	Virginia	5
Massachusetts	2	Washington	8
Michigan	11	West Virginia	4
Minnesota	4	Wisconsin	14
Mississippi	2	Wyoming	0
Missouri	4	District of Columbia	0
Montana	1		
Nebraska	0	TOTAL	195

Institutional classification.--The number of participants associated with different types of institutions is presented in Table 3. Forty-six participants were from universities or colleges, 51 participants were from community-junior colleges, 33 were from technical institutes, 23 were from area vocational-technical schools, one was from a technical high school, 15 were from comprehensive high schools, and 24 were from state departments of education and other types of institutions not classified above. The majority (79%) of the participants were from post-high school type programs--university or college, community or junior college, technical institutes, or area vocational-technical schools. The number of participants from technical high schools and comprehensive high schools accounted for 8.3 percent of those in attendance, and 13 percent were from institutions classified as state department or other agencies. Institutional classification data were not available for two participants.

TABLE 3

DISTRIBUTION OF PARTICIPANTS BY INSTITUTIONAL CLASSIFICATION

Institution Classification	Participants	
	Number	Percent
University or College (4 year)	46	23.8
Community - Jr. College (2 year)	51	26.4
Technical Institute	33	17.1
Area Vocational-Technical School	23	11.9
Technical High School	1	.5
High School - Comprehensive	15	7.8
State Department and Other Agencies	24	13.0
TOTAL	193	

Present position classification.--Table 4 reveals that of the 195 participants, 73 were in state or local administration; 43 were in state or local supervision; 50 were in instruction, either as department heads or instructors; three were in curriculum; 19 were in teacher education; and seven were not classified under any of these headings. The majority of the participants (59.5%) were currently employed in administrative or supervisory positions at the state or local level. Participants who were classified in the area of instruction constituted the next major block (25.6%). Individuals from teacher education accounted for 9.7 percent of the total. Participants from the area of curriculum accounted for 1.5 percent, and those classified as "other" accounted for 3.7 percent of those in attendance.

TABLE 4

DISTRIBUTION OF PARTICIPANTS BY POSITION CLASSIFICATION

Position Classification		Participants	
		Number	Percent
Administration		73	37.4
State	4		
Local	69		
Supervision		43	22.1
State	21		
Local	22		
Instruction		50	25.6
Department Heads	29		
Instructors	21		

TABLE 4 (continued)

Position Classification	Participants Number	Participants Percent
Curriculum	3	1.5
Teacher Education	19	9.7
Not Otherwise Classified	7	3.7
TOTAL	195	

Age grouping.--A summary of the age grouping of the participants is exhibited in Table 5. Four (2.1%) were in the age group 25-29, 35 (18.8%) were in the 30-34 age group, 21 (11.2%) were in the 35-39 age group, 51 (27.4%) were in the 40-44 age group, 42 (22.5%) were in the age group 45-49, 18 (9.6%) were in the 50-54 age group, and 15 (8%) were in the age group classified as 55 and over. Nine participants failed to report their ages.

TABLE 5

DISTRIBUTION OF PARTICIPANTS BY AGE

Participant Age Grouping	Participants Number	Participants Percent
55 and over	15	8.0
50-54	18	9.6
45-49	42	22.5
40-44	51	27.4
35-39	21	11.2
30-34	35	18.8
25-29	4	2.1
TOTAL	186	

Vocational service area.--Table 6 indicates that 193 participants for whom data were available were classified as being associated with agriculture, business, distributive education, home economics, health education, technical education, trade and industrial education, and state departments of education classified as "other." The largest percentage (67.4%) of the participants were from the area of technical education. One other sizeable group was that of trade and industrial education (16.2%). The percentages of participants from other areas were 3.1 percent from agriculture, 4.6 percent from business, .5 percent from distributive education, 1.0 percent from home economics, .5 percent from health education, and 6.7 percent from those classified as "other."

TABLE 6

DISTRIBUTION OF PARTICIPANTS BY SERVICE AREA

Vocational Service Area	Participants Number	Participants Percent
Agriculture	6	3.1
Business	9	4.6
Distributive Education	1	.5
Home Economics	2	1.0
Health Education	1	.5
Technical Education	130	67.4
Trade & Industrial	31	16.2
Other	13	6.7
TOTAL	193	

Highest degree earned.--Table 7 reveals that of the 192 participants for which data were collected, 21 held the Ph.D. or Ed.D., 149 held a Master's degree, and 22 held a Bachelor's degree. Seventy-seven percent of the participants held the Master's degree, 12.1 percent held the Bachelor's degree, and 10.9 percent held the Ph.D. or Ed.D. degree. Degree data were not available on three application forms.

TABLE 7

DISTRIBUTION OF PARTICIPANTS BY HIGHEST DEGREE EARNED

Highest Degree Earned	Participants Number	Participants Percent
Ph.D. or Ed.D.	21	10.9
Master's	149	77.0
B. S. or B. A.	22	12.1
TOTAL	192	

Non-educational work experience in years.--Table 8 shows that the participants' non-educational work experience in years was broken into five major categories. A total of 182 participants were included in the analysis; 40 (22%) were in the 1-3 year category, 63 (35%) were in the 4-7 year category, 49 (27%) were in the 8-11 year category, 13 (7%) were in the 12-15 year category, and 17 (9%) were in the 16 and over category. Thirteen participants did not provide non-educational work experience data in their applications.

TABLE 8

DISTRIBUTION OF PARTICIPANTS BY NON-EDUCATIONAL WORK EXPERIENCE IN YEARS

Years of Non-Educational Work Experience	Participants	
	Number	Percent
1-3	40	22
4-7	63	35
8-11	49	27
12-15	13	7
16 and over	17	9
TOTAL	182	

Professional education work experience in years.--Table 9 indicates that the participants' professional education work experience in years was divided into five broad categories. A total of 189 participants were included in this analysis, 25 (13%) were in the 1-5 year range, 51 (27%) were in the 6-10 year range, 44 (23%) were in the 11-15 year range, 43 (22%) were in the 16-20 year range, and 26 (14%) were in the 21 and over range. Six participants did not provide professional education work experience data in their applications.

TABLE 9

DISTRIBUTION OF PARTICIPANTS BY PROFESSIONAL EDUCATION WORK EXPERIENCE IN YEARS

Years of Professional Education Work Experience	Participants	
	Number	Percent
1-5	25	13
6-10	51	27
11-15	44	23
16-20	43	22
21 and over	26	14
TOTAL	189	

Description of the typical participant.--The typical institute participant was employed in a post-high school institution in an administrative or supervisory position. He was 42 years of age, gave technical education as his service area, held a Master's degree, and had an average of five years of non-educational work experience, and eight years of professional educational work experience.

Participant's Gain in Knowledge

The results of the analysis of data on several facets of the participants' gain in knowledge are presented in the following paragraphs:

Summary of the average pre-test raw score (participant's self-appraisal).--Table 10 indicates that the average pre-test raw score (participant self-appraisal) for all institutes was 134.7. The possible raw score range was from 45-225. The average pre-test scores by institute were: Colorado State University--139.7; Oklahoma State University--135.6; University of Illinois--134.8; University of Florida--133.6; and Rutgers - The State University--130.5.

TABLE 10

SUMMARY OF AVERAGE PRE-TEST SCORES

Average Pre-Test Score for All Institutes	Average Pre-Test Score by Institute Colo.	Okla.	Rutgers	Fla.	Illinois
134.7	139.7	135.6	130.5	133.6	134.8

Summary of average post-test raw scores.--Table 11 indicates that the average post-test raw score (participant self-appraisal) for all institutes was 176.0. The possible raw score range was from 45-225. The scores by institute were: Colorado State University--183.6; University of Illinois--178.0; Rutgers - The State University--177.1; University of Florida--174.3; and Oklahoma State University--167.6.

TABLE 11

SUMMARY OF AVERAGE POST-TEST RAW SCORES

Average Post-Test Score for All Institutes	Average Post-Test Score by Institute Colo.	Okla.	Rutgers	Fla.	Illinois
176.0	183.6	167.6	177.1	174.3	178.0

Participant's average gain in raw score by each item from the pre-test to post-test by vocational service area.--Table 12 indicates the average gain in raw score for each item in the participant self-appraisal by vocational service area. The average gain in raw score from the pre-test to the post-test for the institute was 1.09. The average gains in raw score per item by service area were: home economics--2.07; business education--1.06; technical education--.85; distributive education--.76; agriculture--.86; trade and industrial education--.99; and those classified as other--1.06.

TABLE 12

AVERAGE GAIN IN RAW SCORE BY EACH ITEM FOR THE PRE-TEST TO POST-TEST BY PARTICIPANTS' VOCATIONAL SERVICE AREAS

Vocational Service Area	Average Gain in Raw Score
Home Economics	2.07
Business Education	1.06
Other	1.06
Trade & Industrial	.99
Agriculture	.86
Technical Education	.85
Distributive	.76

Average gain score by item from the pre-test to post-test by institute.--Table 13 indicates that the average gain score (1-5 scale) for each item from the pre-test to post-test (participant self-appraisal) for all institutes was .907. The average gain score by item by institute was: Rutgers - The State University--1.062; Colorado State University--.975; University of Florida--.882; University of Illinois--.871; and Oklahoma State University--.729.

TABLE 13

AVERAGE GAIN SCORE BY ITEM FOR THE PRE-TEST TO POST-TEST FOR INSTITUTES AND BY INDIVIDUAL INSTITUTE

Average Gain for All Institutes	Average Gain by Institute				
	Colo.	Okla.	Rutgers	Fla.	Illinois
.907	.975	.729	1.062	.882	.871

Average percentage of gain by participants from pre-test to post-test by institute.--Table 14 indicates that the average percentage of gain by participants for all institutes was 29.6 percent. The average percent of gain from the participant self-appraisal (pre-test and post-test) by institute was 35 percent for Rutgers - The State University, 31 percent for the Colorado State University, 30 percent for the University of Florida, 29 percent for the University of Illinois, and 23 percent for Oklahoma State University. When percentage of gain was partitioned into three categories (high, medium, and low) and a Chi-square value was calculated, there was a significant difference in the percentage of gain among the institutes.

TABLE 14

AVERAGE PERCENT OF GAIN BY PARTICIPANTS FROM PRE-TEST TO POST-TEST BY INSTITUTE

Institute	Average Percent of Gain
Colorado State University	31.0
Oklahoma State University	23.0
Rutgers - The State University	35.0
University of Florida	30.0
University of Illinois	29.0
All Institutes	29.6

Average percentage of gain by highest degree earned.--Table 15 indicates the average percentage of gain (pre-test to post-test participant self-appraisal) made by each of the three classifications--those holding Bachelors' degrees, Masters' degrees, or doctorates. The highest average percentage of gain (33%) was made by participants holding Bachelors' degrees; those holding the Master's degree gained an average of 22 percent, and the lowest average gain (16%) was made by those participants holding doctor's degrees.

TABLE 15

PARTICIPANT'S HIGHEST DEGREE EARNED AND THE AVERAGE PERCENTAGE OF GAIN

Highest Degree Earned	Average Percent of Gain
Ph.D. or Ed.D.	16
Master's	22
B. S. or B. A.	33

Summary of participant's gain.--The average participant received a gain score of .907 on a five point scale for each item and a percentage of gain of 29.6 from the pre-test to post-test administered as a self-appraisal of his knowledge of concepts in technical education. Participants holding a Bachelor's degree made the highest average percentage of gain, and those holding the Doctor's degree achieved the lowest average percentage of gain.

Participant's Evaluation of Institute Topics

Table 16 is a summary of the average scores for the participants' evaluations of the nine major topics (Appendix A) presented in the institutes. The data from participants' topic evaluation sheets were totaled by major topics except for "The Leadership Role and Charge" which was primarily an orientation topic. The average total score by topic for each institute and grand mean for all institutes was computed. In essence, the average score represents the judgment of participants concerning the value of each topic and what it contributed to the overall effectiveness of the institute. The highest possible rating by topic was 19. The average score for all institutes for the nine major topics ranged from a high of 14.9 for topic five to a low of 13.2 for topic nine. The average rating by participants for the nine major topics ranged from a high of 16.5 on topic number 7 at Oklahoma State University to a low of 11.3 on topic number one at Colorado State University.

TABLE 16

AVERAGE SCORES AND STANDARD DEVIATIONS FOR THE PARTICIPANTS' EVALUATIONS OF THE NINE MAJOR TOPICS

Topic		All Institutes	Individual Institutes				
			Colorado	Oklahoma	Rutgers	Florida	Illinois
1	M	13.7	11.3	14.3	13.7	14.2	14.9
	SD	3.7	3.4	3.2	4.7	3.0	3.2
2	M	14.1	13.4	14.4	14.8	13.8	14.3
	SD	3.2	2.5	2.5	2.5	4.4	3.5
3	M	14.0	13.2	13.0	13.8	14.7	15.3
	SD	2.6	2.8	1.5	2.3	2.4	3.2
4	M	13.9	13.8	13.4	13.2	14.5	14.5
	SD	3.2	2.5	2.7	4.0	3.4	3.0
5	M	14.9	14.9	15.3	16.4	13.0	14.6
	SD	3.1	3.3	2.4	3.3	2.9	2.9
6	M	13.7	15.1	10.9	14.1	13.5	15.2
	SD	3.0	2.6	2.9	2.7	2.5	2.3
7	M	14.2	14.8	16.5	12.9	13.0	13.5
	SD	3.4	2.6	2.1	4.2	3.2	3.0
8	M	13.9	13.9	15.7	11.1	13.1	15.4
	SD	3.6	2.7	2.1	5.4	2.6	1.9
9	M	13.2	12.2	14.4	12.5	13.4	13.7
	SD	3.9	5.1	2.7	5.2	2.1	3.3

Participant's Ability to Apply Knowledge Gained

A problem was structured to have each participant identify the leadership tasks which would be required in getting a technical education program successfully started. The problem specified the community setting, area population, source of financial support and the lead time before the date of operation. The institute directors and staffs reviewed and scored the solutions to the problem. The participant's possible score ranged from a low of one to a high of five. A total of 188 participants completed the problem; and of this number, 30 received a score of five, 71 a score of four, 70 a score of three, and 17 participants received a score of two.

Participant's Leadership Abilities

Table 17 is a summary of the institute directors' ratings for the participants' leadership abilities. The possible score range was from a low of one to a high of five. A total of 189 participants were included in the analysis and 25 (13.3%) were rated 15, 23 (12.2%) were rated 14, 24 (12.7%) were rated 13, 30 (15.8%) were rated 12, 13 (6.8%) were rated 11, 25 (13.3%) were rated 10, 33 (17.4%) were rated 9, and 16 (8.5%) were rated 8. Ratings were not reported for six participants.

TABLE 17

INSTITUTE DIRECTORS' RATINGS FOR
PARTICIPANTS' LEADERSHIP ABILITIES

Participants' Rating by Institute Directors	Participants Number	Participants Percent
15	25	13.3
14	23	12.2
13	24	12.7
12	30	15.8
11	13	6.8
10	25	13.3
9	33	17.4
8	16	8.5
TOTAL	189	

Participant's Plans and Objectives

Results indicated that of the 188 participants, 73 percent had definite plans for implementing new concepts gained from the institutes. One-third (33%) expressed a desire to further their education to foster professional growth objectives. A minority (3%) of the participants indicated that their plans for the future were uncertain or that they were content to remain in their present positions.

Relationships

From the 16 variables selected for analysis, 40 separate contingency tables, utilizing selected combinations of these variables, (Appendix K) were generated. Chi-square values, degrees of freedom, means, standard deviations, and contingency coefficients for each pair of variables were obtained. Of the 40 combinations, there were only five indicating a degree of significance above the .05 level.

The participant's percentage of gain and institute.--A contingency table was constructed for these two variables, and the values of 17.0, .31, and .05 were obtained for the Chi-square value, the contingency coefficient, and the level of significance, respectively.

Institute director's appraisal of participant's leadership ability and the participant's length of service in present position.--Both variables were partitioned into three categories. The categories of the institute director's appraisal of participants were low, middle, and high. Participant's length of service in present position was set into three categories by number of years--1-6, 7-12, and 13 and over. A contingency table was constructed, and the values of 10.4, -.27, and .05 were obtained for the Chi-square value, the contingency coefficient, and the level of significance, respectively.

Institute director's appraisal of participant's leadership ability and participant's present position title.--The institute director's appraisal of participants was set into three categories--low, middle, and high. The present position title was partitioned into six categories--administration, supervision, instruction, curriculum, teacher education, and not otherwise classified. A contingency table was constructed, and the values of 23.9, .362, and .01 were obtained for the Chi-square, the contingency coefficient, and the level of significance, respectively.

Institute director's appraisal of participant's leadership ability and institute.--The institute director's appraisal of participants was set into three categories--low, middle, and high. The variables for the institute were broken into five categories, one for each of the five institutes. A contingency table was constructed, and the resulting value for Chi-square was 62.9, the contingency coefficient was .56, and these were significant at the .001 level.

The participant's percentage of gain and participant's pre-test scores.--Both of these variables were partitioned into three categories--low, middle, and high. A contingency table was constructed and resulting values for Chi-square and the contingency coefficient were calculated and tested. The value calculated for Chi-square was 108.7, the contingency coefficient was .73, and these were significant at the .001 level.

General summary of results.--The participants in the institutes may be assumed to be fairly typical of those found in key leadership positions in technical education. An analysis of the data indicated that they gained new leadership skills and knowledge in technical education and that they expressed a high degree of overall satisfaction with the content, consultants, and mechanics of the institutes. Ninety percent of the participants received an average score or higher (54 percent received good to excellent scores) on the problem designed to test their ability to apply knowledge gained from the institutes. All participants received a better than average score in the institute directors' ratings of their leadership abilities. A majority of the participants had plans for implementing new concepts gained from the institutes, and approximately one-third had plans for furthering their professional education.

Review of Evaluation

The members of the project evaluation committee discussed all aspects of the previously mentioned evaluation results as well as other factors such as the consortium approach and the coordination of the project. The institute directors and recorder-evaluators were pleasantly surprised by the participants' gain in knowledge acquired from the institutes which was reported. The report on the satisfaction of participants with the content and operation of the institutes was also gratifying to the institute representatives. A discussion of the directors' evaluations of major topics of content of the institutes revealed that the data were primarily helpful in developing a list of the best consultants and resource persons for future institutes; and according to the institute directors, the instrument was also helpful, during the operation of the institutes, in reviewing the daily activities as well as in providing some assistance in planning the next day's agenda. Generally, the discussion of the results of the evaluation indicated that there was an appreciable gain by participants, and the Project Evaluation Committee was pleased with this finding.

The success of the consortium approach used in the project and the coordinating institution's role in the following activities were also discussed:

- Planning for the project
- Funding of the project
- Developing instructional materials
- Selecting participants
- Developing evaluation procedures and forms

The appraisal was generally favorable, particularly after consideration of the operating time schedule of the project. The most tangible measure of success for the consortium effort was the desire on the part of each institute director to participate with The Center in a similar project in 1967.

While the committee members were pleased with the instructional materials which had been prepared, they suggested that additional materials be prepared and supplied to the institute participants and staffs for use in conducting future state and locally sponsored leadership training programs in technical education.

Their specific suggestions for supplemental materials included:

- A more complete bibliography of technical education materials
- Commissioned papers on finance, facilities, administrative patterns, and evaluation of technical education
- Revision of information on enrollments and other topics in the original Compilation of Technical Education Materials
- The compilation of selected presentations and summaries of presentations from all institutes

One of the secondary objectives of the National Leadership Development Institutes in Technical Education was to stimulate interest in research and leadership development activities in institutions of higher education. The conclusion that this objective had been accomplished was reached as a result of the discussion of the participants at the Project Evaluation Meeting. Their discussion is summarized in the following statements:

- Institutional representatives from the 1966 institutes indicated a desire to conduct the same type of institutes in 1967
- Mississippi State University representation expressed a desire to conduct an institute in 1967
- North Carolina, Pennsylvania, and Wisconsin were reported to have made plans for follow-up conferences to disseminate institute information
- The University of Illinois institute participants were reported to have plans for a 1967 seminar
- The Center at The Ohio State University announced plans for similar institutes to be conducted in 1967
- Committee members indicated an interest in seminars on teacher education and educational media to be conducted by The Center
- Committee members expressed an interest in and a desire for institutional participation in research projects concerning teacher education which were being planned by The Center

DISCUSSION

Interpretations of the results for each part of the evaluation have been presented in the Discussion section in the same order that they appeared in the Procedures and Results sections of this report.

Description of Participants

Representation by the U. S. Office of Education Regions.--The selection process resulted in an equitable distribution of participants and alternates among the U. S. Office of Education Regions. All regions were well represented with the exceptions of Regions VIII and I. The lack of extensive technical education programs in these regions may account for the low attendance from these states; timing and the communication of the announcements also could have hampered the response by individuals from these two regions. Overall, the institute directors and The Center staff were pleased with the regional distribution of participants attending the institute.

Representation by state.--The Admissions Committee's attempt to obtain a geographic mix of participants was successful; however, an insufficient number of applicants from several states resulted in five states having no participants, and 11 states being represented by only one participant. The states who had no participants--Idaho, Maine, Nebraska, North Dakota, and Wyoming, have a limited population and their technical education programs are in the developmental stages. These factors could account for the poor attendance from these states. Another major factor in the limited participation by some states was the time of year the institutes were conducted. Many local and state administrators have responsibilities for year-end reports and end-of-the-fiscal-year duties which tend to restrict their schedules. Also, many technical educators had already committed themselves to other special professional activities prior to the announcement of the institute; thus, timing was a definite factor for many potential participants.

Institutional classification.--The greatest representation to the institutes was from the post-high school institutions. This might be explained by the fact that most technical education is offered in institutions at the post-high school level, such as universities or four-year colleges, community junior colleges, technical institutes, and area vocational-technical schools. A minority (9 percent) of the participants were from technical or comprehensive high schools. The selection process for future institutes should not rule out participants from the latter category since the participant's leadership potential should be emphasized rather than the institution classification.

Present position classification.--The greatest number of participants attending the institutes were employed in administrative or supervisory positions at the state or local level. The project plans provided for selecting participants currently employed in key leadership positions or selecting individuals with the potential for moving into administration or supervision. The selection criteria and the final selection process adequately provided a balance in the number of participants selected by position classification. However, future institutes might be designed to obtain a better balance between administrators, supervisors, instructors, curriculum specialists, and teacher educators. In the planning of new institutes for leadership training, it may be desirable to sharpen the definitions of the types of position classifications since these would be helpful in selecting potential participants.

Age grouping.--The average age (40 plus) of participants was consistent with the age criteria established by the Planning Committee for participant selection. The age of the participant was not a critical factor in selecting qualified leaders or potential leaders for attendance at the institute. In the selection of participants for future institutes, emphasis should be placed on formal training, experience, and potential rather than on age or experience alone.

Vocational service area.--The participants in the leadership development institutes were mainly from technical education; this is as it was planned and expected to be. They represented areas, such as agriculture technology, health education technology, and other specialized fields. It can be assumed that those from the vocational services and those classified as "other" had an interest in, or the intent to move into, technical education leadership roles for their particular services. The selection process provided for an occupational or area mix which was one of the minor objectives of the project.

Highest degree earned.--A majority of the participants held the Master's degree. This could be explained by the fact that certification requirements for local administrators of technical education and state staff personnel, a large number of whom were solicited in the recruitment process, include the completion of the Master's degree. The remainder of the participants was divided equally between those holding the Doctor's (Ph.D. or Ed.D) and the Bachelor's degree.

Non-educational work experience in years.--The non-educational work experience of participants was not a major criterion used in the selection process. The majority of the participants (35 percent) had four through seven years of work experience which may be explained by the fact that most leaders in technical education must meet state certification requirements; and in general these requirements stipulate a minimum of at least five years of work experience. It is significant to note, however, that 22 percent of all participants were in the one through three years category. This can be explained in part by the fact that many of the participants came to the institute from community or junior colleges which have varied requirements for certification. In fact, some states have no certification requirements for personnel employed in these institutions.

Professional education work experience in years.--The participant's professional education work experience represented the entire employment history of the individual and included his teaching, supervisory, administrative, teacher education, and curriculum development experience. A sizeable group (27 percent) were in the six through ten years category, and 23 percent were in the 11 through 15 years category. The selection criteria and process would tend to favor persons from these two categories. Present day administrators normally come from the ranks of the profession which would explain why nearly 50 percent of the participants had appropriate professional work experience prior to attending the institutes.

Participant's Gain in Knowledge

The interpretation of the participant's gain in knowledge is treated in the following paragraphs. The measure of participant's knowledge as defined in connection with the self-appraisal form is the individual's estimate of his understanding of a given concept.

Summary of the average pre-test raw scores.--The average pre-test score (Participant's Self-Appraisal) for all institutes was 134.7. In general, the institute having the lowest average pre-test score tended to have the greatest overall average percentage of gain. The data used to evaluate the institutes seem to indicate that the participants' gain scores were not only related to the quality of the institute, but also to the knowledge and skill the participants brought with them.

Summary of the average post-test scores for the institute.--Analysis of data revealed there was gain in each of the institutes from the pre-test to the post-test, and the results indicated that there were significant differences between institutes with regard to participant gain in knowledge. However, due to the existence of uncontrolled variables (participant's age, experience, and professional education), and because of limitations of the data available to evaluate the qualitative and quantitative value of the institutes, one should not make definite conclusions that one institute was of better quality than another.

Participant's average gain in raw score points by item from pre-test to post-test (Participant Self-Appraisal) by vocational service area.--Participant's average gain in raw score by item was 1.09. The gain scores ranged from a high of 2.07 for those from home economics to a low of .76 for those participants representing distributive education. The assumption could be that those from home economics education came to the institutes with less knowledge and professional work experience in technical education, and, therefore, a greater gain in knowledge could be expected. The rationale for the gain of .85 in raw score by item on the pre-test to post-test self-appraisal instrument administered to those representing technical education might be explained by the theory that those in technical education brought more skill and knowledge to the institutes and had, therefore, less room for growth than those representing other vocational services. However, it is significant that representatives of all services did show a gain in the raw score from pre-test to post-test, and it is assumed that the gain was a direct result of participation in the institutes.

Average gain score by item for pre-test to post-test by institute.--The average gain score (.907) on a five-point scale by item from the Participant's Self-Appraisal for the institute tends to indicate that the participants believed that they had acquired new knowledge and skill in leadership. The uncontrolled variables in participant selection and in the different methods of operating the institutes may have contributed to the variation in the average gain score by institute.

Average percentage of gain by participants from pre-test to post-test by institute.--The results suggest that at least one institute was superior to the others; however, caution must be exercised if one is to evaluate or rank order the institutes on the basis of the average percentage of gain by participants. The selection of participants did not provide for categorizing them by professional education attainment or by professional education work experience. It could be that by chance the most capable and experienced participants were clustered in the institute showing the lowest percentage of average gain; if this were the case, then one might assume that this group came to the institute much better prepared and qualified. Therefore, the institute that had the highest pre-test score would tend to show a lower average percentage of gain. Conversely, the greatest average percentage of gain by a given institute's participants might be caused by the grouping of participants who by chance were less qualified by educational level and professional work experience. This phenomenon would create a greater growth span for those participants who had low pre-test scores and could influence the overall average percentage of gain by participants for that particular institute.

It would be misleading to evaluate the growth of participants based solely upon the average percentage of gain from the self-appraisal pre-test to post-test. There were significant differences between institutes with regard to average gain, but there were also significant gains by participants in each of the institutes.

Average percentage of gain by highest degree earned.--There was an inverse relationship between the level of the highest degree earned and the gain made in the institutes. This might be explained by assuming that the participants with the Doctor's degree came to the institute better prepared and probably had less room to grow professionally. Conversely, those with the Bachelor's degree may have had greater room for growth, and this could account for the fact that they had the greatest average percentage of gain from the pre-test to the post-test.

Participant's Evaluation of Institute Topics

The topic evaluation analysis provided The Center staff and institute staffs with some indication of the participants' satisfaction with the subject content of the major topics presented in the institutes. The institutes' schedules were well organized. All topics were evaluated at the end of each presentation by participants. The institute staffs met each evening and reviewed the participants' formal evaluations of the topics which resulted in adjustments in schedules and personnel as a direct result of the participants' topic evaluations. The average rating for each major topic represents a judgment by the participants of the technical content and the quality of the presentation by the consultant. Caution must be exercised in concluding that one topic or consultant was superior to another. One could conclude, however, that the participants were generally pleased with the treatment of the majority of the topics. In addition to providing topic evaluation data, the topic evaluation forms provided an indirect benefit because the evaluation committee reviewed those topics with the highest average rating, and this assisted in identifying the more important topics and those consultants and resource persons who did an outstanding job in presenting their topics.

Participant's Ability to Apply Knowledge Gained

The methods used in solving the assigned problem varied between institutes. Two institutes required each participant to complete the assigned problem, and three institutes used a committee of four to complete the assignment. The methods used in solving the problem tended to distort the individual scores for those using the committee approach since these scores were computed on an average for the committee's solution and not on an individual basis. The scores indicated, however, that the participants' solutions to the assigned problem were realistic and acceptable to the institute staffs. These results, although not conclusive, provided evidence that participants acquired new concepts in solving problems in technical education program development.

Participant's Leadership Abilities

The data from the leadership rating forms represented the opinions of the institute directors and staffs relative to the participants' leadership abilities. The validity of the ratings was probably limited since the period of observation was only two weeks. Factors used to appraise the leadership abilities were: (a) communication ability; (b) quality and quantity of contributions made; (c) human relations ability demonstrated; and (d) comments by the directors.

Participant's Plans and Objectives

The results indicated that a majority of the participants (73 percent) planned to implement changes in technical education as a result of learning new concepts and techniques. The data also indicated that participants generally planned to develop and conduct leadership institutes in their representative states. It was interesting that 33 percent of the participants expressed a desire to further their education either to the Master's degree level or the Doctor's degree level. Coding judgment which had to be made in quantifying the data on participants' plans and objectives tended to produce error in the analysis. The real value of this instrument, however, is reflected in the implied objectives stated by participants and their implications for the participants' future professional growth. Generally, it can be assumed that the institute did influence participants to set higher and more challenging goals for their professional careers.

Relationships

Interpretation.--Chi-square and contingency coefficient calculations were used to determine how several selected dependent and independent variables were related. These calculations resulted in the discovery of only five interesting combinations which are discussed in the following paragraphs.

The participant's percentage of gain and institute.--The method of selecting the participants provided for a geographic mix of participants with a variety of educational backgrounds and work experience. The selection technique, however, could create a phenomenon that would tend to lead to a differential in the percentage of gain by institute. A possible, but not conclusive, interpretation of these results, is that there were significant differences between institutes' percentage of gain. However, it was found elsewhere in analyzing the data that all institutes showed significant gains from start to finish.

Institute director's appraisal of participant's leadership abilities and length of service in present position.--The results tend to indicate that those participants with shorter amounts of service in their present positions were rated higher in leadership potential by the institute directors and staff. These results, although not conclusive, may have implications for future institutes whose content would be directed more toward special groupings of participants by length of service and job classification.

Institute director's appraisal of participant's leadership abilities and participant's present position title.--There were significant differences in institute staff appraisal ratings between the various present position title groups. Persons in certain supervisory or second echelon administrative positions were appraised by directors as having greater leadership potential than those in positions that require little or no leadership skills. The differences in appraisals of the participants could be explained by the difference in the raters.

Institute director's appraisal of participants and institute.--The institute directors' appraisals of the participants indicated an overall satisfaction with the quality of the participants. However, there was a significant difference in institute directors' appraisal ratings among the institutes. Caution must be exercised in drawing conclusions from this finding since the difference in ratings may have been due to real differences in the quality of participants in the various institutes, or it may have been due to differences in raters in the five institutes.

The percentage of gain and pre-test score.--The following two possible explanations are offered for the results indicating that the percentage of gain and pre-test score were significant at the .001 level:

1. There actually were differences in percentage of gain for various pre-test score groups. Those who had a low pre-test score showed a high percentage of gain. Thus, the institutes were most valuable to those with a lower pre-test score.
2. The mathematics of the percentage of gain score tend to discriminate against persons with high starting scores; thus, there may have been no real differences in the percentage of gain between the pre-test score groups.

Review of Evaluation

The Project Evaluation Meeting provided results which required no analysis of hard data as in the case of other evaluation activities; consequently, there are no interpretations of results to be presented here. The reader is referred to the Results section of the report for the outcomes of the review of the evaluation which was the purpose of the Project Evaluation Meeting.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Conclusions

The conclusions which have been developed for the project evaluation are presented in the following statements:

1. The centralized efforts which included program planning for the institutes, instructional materials preparation, and recruitment and selection of participants were successful.

2. The evaluation procedures and instruments functioned successfully without distraction for each of the institutes and were effective in achieving the stated objectives of evaluation. However, a quick check rating scale could have been used on the evaluation forms rather than the open-ended questions.

3. All institutes were operated effectively and in a manner deserving commendation. The instructional program varied by institute, but all institutions covered the major topics in the course outline. The attendance was excellent for all institutes.

4. The institutes attracted a geographical mix of participants, which promoted an exchange of varied information about technical education practices.

5. The project achieved a service area mix of participants and a cross sectional representation of position classifications. Nevertheless, more state staff and teacher educators should have attended the institutes to provide a more desirable balance of participants and to secure more long-range benefits through the power structure of state leadership.

6. Participants in all institutes experienced a gain in knowledge. While there were variations in gain scores from one institute to another, it would be difficult to conclude that one institute was better than another because of limitations on the data available.

7. Institute participants were generally pleased and satisfied with the content and quality of the institute programs.

8. Institute participants demonstrated above average ability to apply knowledge gained in the institutes as evidenced by their success in solving the assigned problem.

9. The participants possessed good leadership potential since the directors gave them above average and higher ratings on their demonstrated leadership abilities.

10. A majority of the participants indicated that they planned to implement changes in their technical education programs as the result of information which they acquired during the institutes.

11. Based upon evidence obtained during the project evaluation conference, the project succeeded in developing the interest of institutions of higher education to engage in other research and leadership development activities in technical education.

12. The consortium approach, with The Center in the coordinating role, was successful in planning, developing, implementing, and evaluating the institutes, according to the findings of the Project Evaluation Committee.

Implications

The implications of the findings and experience of this training project for planning and conducting similar projects in the future are outlined in the following:

1. Adequate time should be allowed for instructional materials preparation and participant recruitment activities.
2. The early June dates should be avoided because of scheduling conflicts for participants.
3. There is a need to determine how to attract more state staff and teacher education personnel.
4. Evaluation instruments should be designed with a quick check rating scale rather than with open-ended questions.
5. The problem assignment should be conducted in a uniform manner for all institutes.

Recommendations

Based on the experience of the five institutes conducted in 1966, the following recommendations are offered regarding the nature and need for future training projects in technical education:

1. Additional national leadership development institutes should be conducted because of the number of people who could not be served by the 1966 institutes, the success of the institutes, and the expanding need for leaders in all service areas, including the new and emerging areas of technical education which may not have been adequately represented in the past institutes.

2. A study should be conducted to determine how to attract more state staff and teacher educators to similar institutes.

3. Institutions, in addition to those participating in 1966, should be encouraged to sponsor institutes to provide continuing leadership development training programs serving all states.

4. The consortium approach to training projects with national technical education advisory services, centralized coordination for program planning, instructional materials development, recruitment and selection of participants, and project evaluation should be continued.

5. Leadership and program development training in technical education, supported by federal funds and national advisory services should be continued.

SUMMARY

The nation-wide growth thrust in technical education, stimulated by the demand for greater numbers of technicians, has brought about a tremendous need for leadership personnel in technical education. The critical necessity for developing existing and emerging leaders has been expressed in many professional meetings and publications; hence, the National Leadership Development Institutes in Technical Education project was designed to impact on this problem.

Project Description

The National Leadership Development Institutes in Technical Education was a training project conducted as a consortium effort involving five cooperating universities (Colorado State University, Oklahoma State University, Rutgers - The State University, the University of Florida, and the University of Illinois) and The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University (the institution hereinafter referred to as The Center), which served as the coordinating agency. Each of the five cooperating universities sponsored a two-week institute during the summer of 1966, and therefore provided geographical locations to blanket the nation with 200 opportunities for participation. The Center coordinated the program planning, funding, instructional materials development, recruitment and selection of participants, and evaluation activities of the project.

Purpose of the Project

The purpose of the project was to plan, develop, implement, and evaluate five two-week leadership development institutes in technical education which were designed to provide training for current and potential leaders in technical education, who would later conduct state and locally sponsored leadership training activities, thereby, achieving a "ripple effect" from the project to impact on the improvement and expansion of technical education throughout the nation. The primary objective of the project was to provide a training program to improve and develop program planning, development, implementation, and evaluation skills of current and prospective leaders in technical education.

Procedures

Several important procedures were implemented throughout the duration of the project which are described briefly in the following paragraphs.

Planning committee.--A committee consisting of 15 national leaders of vocational and technical education assisted The Center in planning the training project.

Preparation of instructional materials.--The Center was assisted by Dr. Lynn Emerson, Technical Education Consultant, who, with assistance from members of the Department of Vocational and Technical Education at Rutgers - The State University, determined instructional materials needs and directed the preparation of A Compilation of Technical Education Materials, charts and transparencies which were made available to the institutes' staffs and participants.

Many other resource meaterials were obtained from technical education institutions and state directors of vocational and technical education and sent to the cooperating institutions to be used as instructional resources.

Recruitment of participants.--Participants for the institutes were recruited through a centralized effort conducted by The Center. An announcement brochure, application form, and recommendation sheet were mailed to approximately 3,400 persons. Four-hundred and three applications were received by the Admissions Committee as a result of the recruitment effort which included the aforementioned mailing, announcements via articles in selected media, and presentations to national conferences of vocational and technical educators.

Selection of participants.--Since there were more than twice as many applicants as enrollment opportunities in the five institutes, a great amount of selectivity was possible. Preference was given to state staff members, teacher educators, and other applicants having high leadership responsibility or potential as indicated by recommendations by state directors of vocational education and other administrative superiors. Serious consideration was given to maintaining balance and diversity in each of the institutes with regard to participant representation in terms of geographical mix, field of vocational or technical education specialization, and the nature of the participants' positions.

Development of evaluation procedures.--Procedures and instruments were prepared to comply with the evaluation objectives of the project. The following instruments were developed in addition to the participant's application form which provided biographical data used in the evaluation:

- Participant's Self-Appraisal
- Participant's Evaluation of Major Topics
- Evaluation of Major Topics by Institute Directors
- Appraisal of the Participants by Institute Directors
- A Problem
- Participant's Plans and Objectives

Final planning meeting with institute directors.--A final planning conference was held with the directors and associate directors to review the instructional materials, the evaluation procedures, and other important matters concerning the operation of the institutes. The meeting improved the communications with the cooperating institutions and facilitated preparation for the operation of the institutes.

Selection and preparation of recorder-evaluators.--The recorder-evaluators were graduate students selected by each institute director to assist with the administration of the institutes by recording activities and collecting data to be used in evaluating each institute and the project. An orientation and training conference for the recorder-evaluators was held at The Center on June 1, 1966, to acquaint them with a uniform system to be used in performing their duties.

Operation of the institutes.--The leadership development institutes were conducted at Colorado State University on July 11-27, 1966; Oklahoma State University, Rutgers - The State University, the University of Florida, and the University of Illinois on June 6-17, 1966.

The program of each institute covered the following major topics:

- The Leadership Role and Charge
- The Rationale and Need for Technical Education
- Description of the Technical Education Student
- Administrative Structure of Technical Education
- Program Patterns and Curriculum Development
- Facilities and Equipment for Technical Education
- Staffing Technical Education Programs
- Financing Technical Education
- Supervision of the In-Service Education Program
- Establishing Research and Development Needs

Consultants and resource persons were drawn from education, industry, and government and were used extensively in the activity of each of the institutes.

The institutes served 195 participants (191 men and 4 women) from 46 states and Puerto Rico.

Project evaluation.--The project evaluation was designed to determine the participant's:

- Gain in knowledge acquired from the institutes
- Satisfaction with the content, presentations, and operation of the institutes
- Ability to apply knowledge gained from the institutes
- Leadership skills demonstrated through participation and involvement in the institutes
- Ability to utilize knowledge gained for program planning and implementing change

The data used in evaluating the institutes were obtained from the application form and five specifically prepared instruments. Electronic data processing programs used in the data reduction included The Ohio State Questionnaire Analysis and the Bio-medical Program for Chi-square.

A meeting to review and interpret the project evaluation was held at The Center on October 10-11, 1966.

Preparation of additional instructional materials.--The Project Evaluation Committee recommended that additional instructional materials be prepared and distributed to the institute participants and staff for use in conducting future state and locally sponsored leadership development institutes in technical education. The following supplements for the original Compilation of Technical Education Materials were prepared and distributed to the participants and the staffs of the institutes:

- Supplement I, New and Revised Informational Resources
- Supplement II, Institute Presentations

Results

The results of the project evaluation and highlights of these findings are summarized in the following paragraphs:

Description of participants.--The typical institute participant was employed in a post-high school institution in an administrative or supervisory position. He was 42 years of age, gave technical education as his service area; held a Master's degree, and had an average of five years of non-educational work experience and eight years of professional educational work experience.

Participant's gain in knowledge.--The average participant received a gain score of .907 on a five-point scale for each item and a percentage of gain of 29.6 from the pre-test to post-test administered as a self-appraisal of his knowledge of concepts in technical education. Participants holding a Bachelor's degree made the highest average percentage of gain and those holding the Doctor's degree achieved the lowest average percentage of gain.

Participant's evaluation of institute topics.--The average score for major topics evaluated by the participants was 14.9 with 19.0 as the highest possible rating by topic.

Participant's ability to apply knowledge gained.--A majority of the participants received an above average score on a problem which was assigned to determine their ability to apply knowledge gained during the institute.

Participant's leadership abilities.--More than half of the participants received an above average rating by the institute directors for leadership abilities which they demonstrated during the institutes. The validity of these ratings was probably limited, however, because the period of observation was only two weeks.

Participant's plans and objectives.--A majority of the participants had plans for implementing in their programs new concepts gained from the institutes. Approximately one-third expressed a desire to further their professional education.

Discussion

The evaluation results tend to indicate that the institutes were successful in attracting desirable participants who represented a geographical mix, a service area mix, and a professional position classification mix; but a greater participation by state supervisory and teacher education personnel would have been desirable.

The institutes were operated in a highly creditable manner and enjoyed excellent attendance. Participants achieved gains in knowledge, obtained favorable scores in applying knowledge, and were generally satisfied with the content and operation of the institute programs. Institute directors were favorably impressed with the demonstrated leadership abilities of the participants. According to the project evaluation review meeting, the coordinating agency was successful in program planning, instructional materials preparation, recruitment and selection of participants, and evaluation of the institutes. The institute directors were sufficiently pleased with The Center staff's performance as the coordinating agency for the consortium that each director offered to engage in a similar project with The Center in 1967.

Conclusions

The conclusions which have been developed for the project evaluation are presented in the following statements:

- The centralized efforts which included program planning for the institutes, instructional materials preparation, and recruitment and selection of participants were successful.

- The evaluation procedures and instruments functioned successfully without distraction for each of the institutes and were effective in achieving the stated objectives of evaluation. However, a quick check rating scale could have been used on the evaluation forms rather than the open-ended questions.

- All institutes were operated effectively and in a manner deserving commendation. The instructional program varied by institute, but all institutions covered the major topics in the course outline. The attendance was excellent for all institutes.

- The institutes attracted a geographical mix of participants, which promoted an exchange of varied information about technical education practices.

- The project achieved a service area mix of participants and a cross sectional representation of position classifications. Nevertheless, more state staff and teacher educators should have attended the institutes to provide a more desirable balance of participants and to secure more long-range benefits through the power structure of state leadership.

- Participants in all institutes experienced a gain in knowledge. While there were variations in gain scores from one institute to another, it would be difficult to conclude that one institute was better than another because of limitations on the data available.

- Institute participants were generally pleased and satisfied with the content and quality of the institute programs.

- Institute participants demonstrated above average ability to apply knowledge gained in the institutes as evidenced by their success in solving the assigned problem.

- The participants possessed good leadership potential since the directors gave them above average and higher ratings on their demonstrated leadership abilities.

- A majority of the participants indicated that they planned to implement changes in their technical education programs as the result of information which they acquired during the institutes.

- Based upon evidence obtained during the project evaluation conference, the project succeeded in developing the interest of institutions of higher education to engage in other research and leadership development activities in technical education.

- The consortium approach, with The Center in the coordinating role, was successful in planning, developing, implementing, and evaluating the institutes, according to the findings of the project evaluation committee.

Implications

The implications of the findings and experience of this training project for planning and conducting similar projects in the future are outlined in the following:

- Adequate time should be allowed for instructional materials preparation and participant recruitment activities.

- The early June dates should be avoided because of scheduling conflicts for participants.

- There is a need to determine how to attract more state staff and teacher education personnel.

- Evaluation instruments should be designed with a quick check rating scale rather than with open-ended questions.

- The problem assignment should be conducted in a uniform manner for all institutes.

Recommendations

Based on the experience of the five institutes conducted in 1966, the following recommendations are offered regarding the nature and need for future training projects in technical education:

- Additional national leadership development institutes should be conducted because of the number of people who could not be served by the 1966 institutes, the success of the institutes, and the expanding need for leaders in all service areas, including the new and emerging areas of technical education which may not have been adequately represented in the past institutes.

- A study should be conducted to determine how to attract more state staff and teacher educators to similar institutes.

- Institutions, in addition to those participating in 1966, should be encouraged to sponsor institutes to provide continuing leadership development training programs serving all states.

- The consortium approach to training projects with national technical education advisory services, centralized coordination for program planning, instructional materials development, recruitment and selection of participants, and project evaluation should be continued.

- Leadership and program development training in technical education, supported by federal funds and national advisory services should be continued.

APPENDIX A

PARTICIPANTS

Pre-Planning Meeting

August 27, 1965

The Center for Vocational and Technical Education
The Ohio State University

Robert E. Taylor, Director
The Center for Vocational and Technical Education
The Ohio State University

Robert M. Knoebel, Head
Technical Education Unit
Vocational and Technical Education Division
Bureau of Adult and Vocational Education
U. S. Office of Education

James W. Hensel
Specialist in Vocational Agriculture
The Center for Vocational and Technical Education
The Ohio State University

Byrl R. Shoemaker
Director of Vocational Education
Ohio State Department of Education

Edward R. Towers
Professor of Industrial Arts Education
The Ohio State University

R. O. Brinkman, Superintendent
Springfield and Clark County
Joint Vocational School District
Springfield, Ohio

C. J. Cotrell
Senior Research Scientist
American Institutes for Research
Pittsburgh, Pennsylvania

PARTICIPANTS

Planning Committee Meeting

November 15-16, 1965

The Center for Vocational and Technical Education
The Ohio State University

Title	Institution
H. L. Benson, Professor and Head Department of Vocational Education	Colorado State University Fort Collins, Colorado
R. O. Brinkman, Superintendent	Joint Vocational School District Springfield and Clark Counties Springfield, Ohio
V. E. Christensen Research Consultant	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
C. J. Cotrell, Specialist Trade and Industrial Education	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
J. K. Doss, Head Teacher Trainer Trade and Industrial Education College of Education	University of Georgia Athens, Georgia
L. A. Emerson, Professor Emeritus School of Industrial and Labor Relations	Cornell University Ithaca, New York
M. R. Karnes, Chairman Department of Vocational and Technical Education	University of Illinois Urbana, Illinois
R. M. Knoebel, Head Technical Education Unit Division of Vocational and Technical Education	U. S. Office of Education Department of Health, Education, and Welfare
T. A. Koschler, Director Computer Center and Federal Assistance Program	Miami-Dade Junior College Miami, Florida

Title	Institution
M. E. Larson, Adviser Department of Vocational-Technical Education	Rutgers - The State University New Brunswick, New Jersey
J. T. Nerden, Professor Industrial Education School of Education	North Carolina State University Raleigh, North Carolina
Maurice W. Roney, Director School of Industrial Education	Oklahoma State University Stillwater, Oklahoma
J. E. Shenton, President	Erie County Technical Institute Buffalo, New York
Byrl Shoemaker, Director Vocational Education	State Department of Education Columbus, Ohio
Robert E. Taylor, Director	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
E. R. Towers, Professor Industrial Arts Education School of Education	The Ohio State University Columbus, Ohio
Ralph C. Wenrich, Professor Vocational Education and Practical Arts	University of Michigan Ann Arbor, Michigan

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

Outline of Instructional Units

I. The Leadership Role and Charge

  A. The campus

  B. The institute program

  C. The role and responsibility of leaders

II. The Rationale and Need for Technical Education

  A. Nature, scope, and level of technical education

    1. The role of the technician

    2. Objectives of technical education

  B. Studies and surveys

    1. Labor market trends

      a. Local
      b. State
      c. National
      d. International

    2. Population growth trends

      a. General
      b. School
      c. Mobility
      d. Immigration

    3. Changes in occupations

    4. Changes in sources of technicians

    5. Changes in school attendance

    6. Assessment of present and future needs

    7. The rate of change in technology

    8. Technician placement studies

    9. Social, economic, and psychological needs of the individual for training and employment

10. The employers' needs for technicians

11. The shift in educational emphasis from doing to thinking to feeling

III. Description of the Technical Education Student

A. Economic need of individuals

B. Persons who can profit from technical education

C. Programs to meet needs of various age groups

D. Criteria for selecting students

E. Sources of students

IV. Administrative Structure of Technical Education Institutions

A. Statewide patterns

B. Public schools

1. Community colleges

2. Technical institutes

3. Area schools

4. Four-year colleges

C. Private schools

D. Military services

E. Other governmental agencies

F. Correspondence schools

V. Program Patterns and Curriculum Development

A. Flexibility

B. Diversity

C. Broad cluster training approach to curricula

D. Comprehensiveness

E. Continuous reexamination of purpose

F. Continuing change of program with new knowledge

G. Community oriented program

H. Exploiting community resources

I. Student appeal

J. Response to the needs of people

K. Anticipation of future needs

  1. New products

  2. New processes

L. Continuing education

VI. Facilities and Equipment for Technical Education Programs

A. The site

  1. Using advisory committees

  2. Selection

  3. Location

B. Building (Type of Construction)

C. Equipment (Comparable to industry)

D. Provision for modern teaching

E. Illumination

F. Development of laboratories

  1. Time required

  2. Planning

G. Conference facilities

H. Library

I. Cafeteria

J. Supplies

K. Anticipatory planning

VII. Staffing Technical Education Programs

A. Types of personnel

1. Technical teachers

2. Mathematics and science teachers

3. General education teachers

4. Auxiliary course teachers

5. Librarians

6. Supervisors

7. Administrators

B. Qualifications for each type of staff member

C. Functions of administrators and supervisors

D. Sources of supply for staff

1. Recruitment

2. Selection

VIII. Financing Technical Education Programs

A. Capital outlay

1. Plant

2. Equipment

3. Sites

a. Free sites
b. Selected sites

B. Operating costs

1. Personnel services

2. Overhead

C. Comparative costs

1. Cost per student per year

        2. Justification for costs
        3. Room utilization
    D. Financing patterns

IX. Supervision and In-Service Teacher Education
    A. Personnel services
    B. Effective use of facilities
    C. Curriculum improvement
    D. Effective techniques of evaluation
    E. Accreditation

X. Establishing Research and Development Needs
    A. The role of research and development
    B. Utilization of research in administration of technical education
    C. Identification of critical research and development problems

APPENDIX B

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Suggested Instructional Aids

by

Lynn A. Emerson

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
UNIT 1. THE LEADERSHIP ROLE	
Role and responsibility of leaders Pre-test (if used)	Tests for use at beginning and close of the institute
UNIT 2. RATIONALE AND NEED FOR TECHNICAL EDUCATION	
Technological change and impacts on the labor force	"Cybernation - The Silent Conquest" Summary of recent articles and BLS bulletins
Labor market data and trends: National surveys Projections of technician needs and supply Methods of projection Use of Census data Calculation of attrition	BLS bulletin data (NSF and other bulletins) BLS "Technical Manpower" (manuscript form at present): Projections and bases of projections, calculating attrition, etc. Charts and tables to be prepared.
State and SMSA surveys: Nature and extent of the state surveys; pertinent findings.	Samples of state surveys, such as New York, North Carolina, etc.; samples of SMSA surveys. Graphs and charts illustrating findings.
Local occupational surveys: Purpose - nature - scope Procedures	Charts showing steps in making surveys; time table. Sample surveys available for study.
Population data and trends: National - regional - SMSA - states Migration - interstate, intrastate	Charts and maps of pertinent data
School population data and trends: Projection of enrollment	Table showing sample projected enrollments
Current enrollments in types of institutions	Enrollments in relation to population by states.
Geographical area served by school	Sample maps of area served with attendance from districts.
Placement market of a technical school	Chart or map showing location of graduates
Sources of trained technicians - estimates of numbers	Chart listing sources Chart showing relative numbers from different sources BLS "Technical Manpower"
Potential supply of technicians in relation to needs. Enrollments in technical schools	Chart or table using data in BLS "Technical Manpower" bulletin
UNIT 3. THE TECHNICAL EDUCATION STUDENT	
Economic needs of students Scholarships - work-study opportunity	Chart of state practices re scholarships Data on funds available for work-study programs
Types of students who can profit from technical study	
Program types to meet the needs of students of wide-range of ability Engineering technology curriculums Industrial technology curriculums Technical specialist curriculums	Chart showing types of programs of differing scope and level
Criteria for student selection	Sample listing of criteria, on chart
Sources of students High school graduates, dropouts with work experience, employed and unemployed adults	Chart listing sources

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Entrance requirements	Chart of comparative entrance requirements for typical programs, by states
Potential numbers of students available Surveys of individual high school students Projections on basis of: Number of high school students in area Number of high school graduates Availability in relation to distance of travel	Table of ratios for selected states Map showing sources of students in relation to geographical location of school
Recruiting practices Day and evening students Relationships with "feeder" schools	Sample posters used for evening classes Samples of publicity materials - slides, brochures, etc. used with feeder schools
Women as technical students	Chart showing data from BLS "Technical Manpower"
Student personnel services Organization - personnel - procedures	
UNIT 4. ADMINISTRATIVE STRUCTURE OF TECHNICAL EDUCATION	
Statewide patterns for technical education Types of institutions offering technical programs Schools offering technical programs	Chart of highlights of selected state administrative patterns Chart (see Appendix I, p. 56) Table of schools, by type of school, by states (numbers of such schools)
Statewide planning for technical education programs Relation of individual institution to state master plan	Table of elements found in a statewide master plan.
Federal-state-local relationships for technical education Federal laws and regulations	Copies of typical state plans O/E bulletins showing legislation O/E Plan Guide
Structure of the local program, by types of curriculums and courses Preemployment-updating-upgrading-retraining programs Full-time-part-time-cooperative What goes on during a typical day and evening in a technical school	Chart listing types of offerings in a comprehensive institution Time schedule of a typical comprehensive program, in chart form
Comparative roles of the community college, technical institute, area vocational/technical school, high school with respect to technical education Relative assets and liabilities of these types of institutions.	Possible chart showing relative numbers enrolled in each type of school, on national basis (for institutions that report to the O/E)
Enrollments in programs subsidized under Title III Preemployment-extension, by curriculums, etc.	Table showing enrollments, by states, by preemployment and extension Table of national enrollments, by curriculums, sex, etc.
Accreditation of curriculums and schools Agencies concerned Accreditation procedures	Chart or table showing ECPD curriculums accredited, by states, by schools Map of U. S. showing location of schools with ECPD accredited curriculums
Recent changes in state administrative patterns for technical education Changes in legislation Nationwide trends in administrative patterns	Listing of changes in North Carolina, Virginia, New Jersey, etc.

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Technician training programs within industry	
Place of the private technical institute in the total pattern	List of schools affiliated with the National Council
Statewide master planning	
UNIT 5. PROGRAM PLANNING AND CURRICULUM DEVELOPMENT	
Steps in program planning	Chart showing items to be considered
Selection of programs to be offered	List of titles of curriculums offered today in the U. S.
Types of programs that might be offered	
Preemployment full-time day programs Extended day programs - updating, upgrading, retraining (MDTA)	Chart of comparative full-time and extension enrollments, by states
Cooperative programs	Chart of typical coop periods used
Curriculum development	
Different ways of building curriculums	
Steps in curriculum building by occupational analysis	Chart or handout sheet showing steps
The occupational cluster as a curriculum objective	O/E bulletin on cluster identification Chart from New York State bulletin showing cluster for building construction
Curriculum design problems Controls that affect curriculums Effect of institutional policies	
Sequence of courses in a curriculum	Chart showing items that affect sequence
Distribution of content in the technical curriculum	Charts showing subject matter distribution in selected schools
Mathematics - scope, level and integration with technology	Chart of course titles found in typical curriculums
Science - type, scope, level integration	Chart of general education course titles and allotment of time to general education in selected curriculums
Technology - major field - ancillary fields	
Industrial management content	
General education content	
Laboratory, shop, drafting, and classroom portions of the curriculum	See relation to need for facilities
Options in curriculums	
Curriculum content distribution by fields Averages for large number of schools	Check-chart listing averages from studies such as Roney's and Henninger's
Curriculum comparisons, by specific courses, in selected schools	Chart showing distribution of technical and other content, by semester hours, for selected schools
Comparison of curriculum content distribution for technician, technologist, engineer, and craftsman training	Chart showing content distribution
Range and frequency of curriculums offered in the U. S.	Chart showing titles and frequency of offering
Technical programs in fields other than engineering-related	List of typical programs in business, paramedical, agri-business, and other fields
Trends concerning vocational/technical program offerings with respect to age-grade level	Chart showing "tracks" of the comprehensive high school of tomorrow Chart illustrating basic or cluster patterns for comprehensive high school
Enrollment trends in high school and post-high school curriculums	Chart showing enrollments, by states, for 1959 and 1964
Procedures in the development of courses of study Course planning for organized curriculums Course planning for extended day unit-course offerings	List of steps in course of study development

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Development of instructional materials for technical programs Types of materials Steps involved in development	Chart showing sequential steps in instructional materials development
Credentials awarded in technical education programs Certificates, diplomas, associate degrees	
Recent innovations in curriculum offerings	Listing in chart form of some of the newer curriculum developments
UNIT 6. FACILITIES AND EQUIPMENT	
Overall planning of facilities and equipment	List of steps involved in overall planning
In relation to present plant Planning for future growth (including multiple campuses) Importance of "image" of institution as influenced by physical plant	
Site selection Size and location - travel facilities	Check list of items to be considered when selecting sites
Importance of parking space Free sites - assets and liabilities Staff involvement in planning	Table showing typical and average acreage of selected schools
Time schedule of plant development	Chart showing items and time required
Building planning Using a computer for building planning Use of modular construction	See article on St. Louis Junior College in Junior College Journal
Laboratory design Size - shapes - services needed	Check list for items to be considered in laboratory planning
Functional design in terms of relation to course content	Sample laboratory layout drawings, for selected curriculums
Instructional equipment Decision concerning equipment needed in relation to course of study content	
Items considered when specifying equipment to be purchased	Check list of items
Sources (Vendors or manufacturers) of commonly used equipment in technical education laboratories	List of manufacturers of equipment for selected fields
Equipment Surplus and government loan equipment Sources and procedures Assets and liabilities	
Physical plant for technical education compared with that for vocational-industrial programs Relative numbers of shops, laboratories, and classrooms Location of classrooms Nature of equipment required	
Recently constructed facilities for technical education	Photographs and outline plans of newly constructed plant
Utilization of rented space when starting technical programs	
Educational specifications	
Purchase vs rental of equipment	

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
UNIT 7. STAFFING THE TECHNICAL PROGRAM	
Types of teachers needed for technical education programs	
Qualifications desired for teaching staff Technology teachers - laboratory and classroom Mathematics - science - general education teachers General education desired Technical training needed Experience in industry required	
Qualifications desired for guidance counselors, department heads, supervisors	
Certification requirements for teachers Types of institutions to which state certification requirements are applicable	Chart showing certification requirements by states
Sources of technical program teachers	Chart showing sources
Recruitment practices for staff Direct hiring Use of agencies or organizations in locating qualified staff	
Present-day salaries of teachers and other staff personnel	Charted data from recent studies
Profile of the good technical teacher	Data from recent study by Storm (Oregon State University), ASEE study and others
Teacher-student ratios in technical education programs	Chart showing data from typical schools
UNIT 8. FINANCING TECHNICAL EDUCATION	
Financial provisions of PL 88-210 and other federal acts	Chart showing funds and purposes for which they can be used
Policies concerning funding of local programs from state and federal funds Basis of reimbursement	Sample state plans for vocational education
Fund raising for capital outlay Bond issues and other sources Procedures in bond issues	
State-local patterns of sharing costs of technical education programs - capital outlay, operating costs	Chart showing patterns of typical states in financing community college and other programs
Bases for estimating costs from experience of going institutions Building cost per square foot Building cost per FTE student Parking area needed per student Operating costs per student	Charts showing costs in selected schools
Salaries for instructional and other staff	Listing of salary schedules for typical schools
Non-public sources of financial support Typical types of program receiving Foundation support	
Equipment costs For selected laboratories	List of equipment and costs, available in O/E and other bulletins

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Financial aspects of room utilization Load factors (room usage) of typical programs	
UNIT 9. SUPERVISION AND IN-SERVICE TRAINING	
Supervisory functions Efficient and economical operation Maintenance of good personnel relations between faculty and administration Professional assistance to teachers Evaluation of teacher service Upgrading and updating of staff	
Types of professional improvement programs in typical institutions	
Professional training for evening and other part-time teachers	
UNIT 10. RESEARCH AND DEVELOPMENT NEEDS	
The role of R and D in technical education	
Utilization of research in teaching and administration	
Areas of content, procedures, etc., where research is needed	See Appendix I - Chapter on research - (Education for a Changing World of Work)
Research procedures and techniques Defining the problem, gathering data, etc. Funds available for R and D under PL 88-210	
Procedures in submitting research proposals under PL 88-210 - 4(c)	O/E bulletin
MISCELLANEOUS ITEMS NOT FULLY COVERED UNDER OTHER HEADINGS	
Elements of long-range planning	Charts showing steps involved
Advisory committees - functions and use Public relations - relations with employers, organizations, professional societies	Chapter 2 - "Technical Training beyond High School See Appendix I, p. 106
Federal acts affecting technical education	Chart showing highlights
Federal appropriations available to a state	Chart showing appropriations by states Chart showing distribution of federal funds within a state
Team teaching - techniques and values	
Closed circuit TV use for instruction	
Certification of technicians	
The technician and his job Job titles, characteristic tasks, etc.	
Textbooks used in selected schools by courses and curriculums	Publishers' catalogs available
Bibliography - annotated - classified under headings used for the institute	Technical Education Yearbook--Technical Education News---BLS "Technical Manpower"--Oklahoma report, etc.
Objectives of technical programs in terms of types of learning achieved by the student	

APPENDIX C

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN Vocational and Technical Education

THE OHIO STATE UNIVERSITY
980 KINNEAR ROAD
COLUMBUS, OHIO 43212

MEMO

TO: State Directors of Vocational and Technical Education

FROM: C. J. Cotrell, Specialist

SUBJECT: Nomination of Participants for National Leadership Development Institutes in Technical Education

DATE: April 1, 1966

Please nominate persons from your state who qualify for participation in the National Leadership Development Institutes in Technical Education which are announced in the enclosed materials.

If you will send us the names and addresses of your nominees, we will send them announcements and applications.

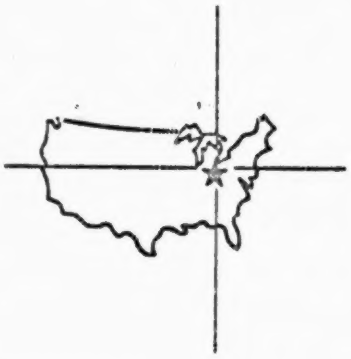
Thank you in advance for this assistance.

Enclosures

IN COOPERATION WITH THE DIVISION OF ADULT AND VOCATIONAL RESEARCH, UNITED STATES OFFICE OF EDUCATION

SUMMER 1966

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION



COLORADO STATE UNIVERSITY

OKLAHOMA STATE UNIVERSITY

RUTGERS - THE STATE UNIVERSITY

UNIVERSITY OF FLORIDA

UNIVERSITY OF ILLINOIS

These institutes are a cooperative effort of the five universities and *The Center for Research and Leadership Development in Vocational and Technical Education,* The Ohio State University, Columbus, Ohio.

PURPOSE

The purpose of the institutes is to develop and expand the leadership capacity of technical education in the United States through five two-week summer institutes. Following the institutes, it is anticipated that participants will assist in similar activities in their home states.

ELIGIBILITY OF PARTICIPANTS

Applicants must have administrative, supervisory, or teacher education experience in technical education, or must have demonstrated potential for such leadership positions. Applicants must also be recommended by the head of the local institution (where applicable) and by the appropriate chief state education officer. Consideration will be given to insure a wide range of participants with regard to geographical regions, areas of specialization and professional positions represented at each institute.

CREDIT

Successful completion of the two-week institute may entitle the participant to academic credit depending on (1) the status of the participant, and (2) the policy of the host institution in granting credit for short term courses. Participants desiring college credit, are advised to request specific information from the director of the institution that they are invited to attend. Tuition charges for such credit will be the responsibility of the participant.

TRAVEL AND PER DIEM

Each participant will be reimbursed an amount not to exceed air tourist fare for a round trip from his home to the institute and provided $75 per week for subsistance. No fees will be charged at the institute other than a nominal registration fee.

ADMISSION PROCEDURE

The attached application must be completed and sent to:

Admissions Committee
National Leadership Development
Institutes in Technical Education
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Applications will be processed in the order received. The first meeting of the Admissions Committee will be April 26, 1966.

The attached recommendation sheets must be completed and forwarded to the Admissions Committee by the head of the applicant's local institution (when appropriate) and by the chief state education officer (State Director of Vocational Education, Director of Community Colleges, etc.) responsible for technical education.

NOTE: It shall be the applicant's responsibility to make certain that the recommendation sheets are sent to the Admissions Committee.

CONTENT

The content of the two-week institutes will be covered through a variety of media. These include lecture presentations, discussions with leaders in the field, small group work, individual study, and field trips.

Each institute will include the following major topics:

The Leadership Role and Charge

Nature, Scope, and Levels of Technical Occupations

The Rationale and Need for Technical Education

Description of the Technical Education Student

Administrative Structure of Technical Education Institutions

Program Patterns and Curriculum Development

Staffing Technical Education Programs

Facilities and Equipment for Technical Education

Financing Technical Education

Supervision and In-Service Teacher Education

Establishing Research and Development Needs

LOCATIONS, DATES AND INSTITUTE DIRECTORS

COLORADO

Colorado State University,
Fort Collins
July 11 - 22, 1966
Herbert L. Benson, Director

FLORIDA

University of Florida, Gainesville
June 6 - 17, 1966
E. L. Kurth, Director

ILLINOIS

University of Illinois, Urbana
June 6 - 17, 1966
M. Ray Karnes, Director

NEW JERSEY

Rutgers - The State University,
New Brunswick
June 6 - 17, 1966
Milton E. Larson, Director

OKLAHOMA

Oklahoma State University,
Stillwater
June 6 - 17, 1966
Maurice W. Roney, Director

APPLICATION

National Leadership Development Institutes in Technical Education

1. Name of Applicant Mr.
Mrs.
2. Age ______ Miss ____
(Last) (First) (Middle)

3. Address
Street ______________________________ City ____________________
State ____________________ Zip Code ______ Telephone ____________________

4. Present Position Title ____

5. Present Position Duties ____

6. Professional Education Employment Record. List experience in the field of education. (List most recent experience first and give the last four positions only.)

Position	Institution	City	State	No. of Years

7. Non-educational Employment Record. List experience in business, industry, government, etc. (List most recent experience first.)

Position	Institution	City	State	No. of Years

8. Formal Education

Institution	Degree	Year Received	Major Field

(over)

9. List any other education and training which you feel has helped you in your professional development with respect to technical education.

____

____

____

10. What are your long range goals with regard to technical education?

____

____

____

____

11. Is graduate credit for this institute mandatory? Yes ____ No ____

12. If selected, are you willing to attend any one of the institutes?

Yes ____ No ____ If no, please explain. ____________________

____

____

____

13. List below the name(s) and address(es) of the person(s) whom you have asked to send recommendation sheets.

Name	Title	Address
(Local chief administrative officer when applicable)		
(State official)		

14. Date ____________ Applicant's Signature ____________________

15. Send your application to:

Admissions Committee
National Leadership Development Institutes
in Technical Education
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

CONFIDENTIAL RECOMMENDATION SHEET

National Leadership Development Institutes in Technical Education

____ is applying for admission to one of five two-week National Leadership Development Institutes in Technical Education designed to develop and expand the leadership capacity of technical education in the United States. It is anticipated that the participants will return to their home states and conduct or assist in state and area leadership development activities.

We request your candid appraisal of the applicant in regard to:

Administrative capacity -

Professional vision -

Probable ultimate level of professional attainment -

Capability to conduct or help conduct state and area leadership development institutes if requested by the state -

Date ______________ Signed ____

Position ____

Agency or Institution ____________________________________

After completing the
recommendation sheet,
please mail it to:

Admissions Committee
National Leadership Development Institutes
in Technical Education
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

SUMMARY OF APPLICATIONS FOR THE INSTITUTES

Origin	Number of Applications	Origin	Number of Applications
Alabama	9	New Hampshire	5
Alaska	1	New Jersey	9
Arizona	9	New Mexico	1
Arkansas	2	New York	15
California	21	North Carolina	21
Colorado	7	North Dakota	0
Connecticut	5	Ohio	12
Delaware	2	Oklahoma	10
Florida	22	Oregon	10
Georgia	3	Pennsylvania	17
Hawaii	5	Rhode Island	2
Idaho	3	South Carolina	3
Illinois	21	South Dakota	4
Indiana	7	Tennessee	5
Iowa	7	Texas	12
Kansas	8	Utah	5
Kentucky	3	Vermont	2
Louisiana	6	Virginia	13
Maine	3	Washington	12
Maryland	1	West Virginia	5
Massachusetts	5	Wisconsin	29
Michigan	16	Wyoming	0
Minnesota	6	District of Columbia	3
Mississippi	6	Puerto Rico	2
Missouri	11	Virgin Islands	1
Montana	1	American Samoa	0
Nebraska	3	Guam	0
Nevada	4	Canada	8
		Total	403

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN Vocational and Technical Education

APPENDIX D

THE OHIO STATE UNIVERSITY
980 KINNEAR ROAD
COLUMBUS, OHIO 43212

May 3, 1966

Dear

The Center is coordinating national leadership development institutes in technical education which will be offered this summer by five leading universities. Outstanding personnel in technical education will be involved as institute staff and participants. (See attached announcement).

These institutes are extremely vital to the future development of technical education, and we would like to ask your help in making them successful. Many of the instructional materials which are important to the success of the institutes, must be obtained through persons in the field. You can help us by supplying some of the extremely essential materials listed on the enclosed sheet.

If at all possible, we would like a dozen copies of each item since this would provide one copy for each group of twenty participants. After the institutes, the material will be placed in the technical education libraries of the host universities. In the event that there is a charge for the materials, we would be grateful if you would send one sample copy with information concerning the cost and availability of additional copies. We need the materials by May 20, 1966, in order to send them to the cooperating universities.

Thank you very much, and we shall look forward to hearing from you soon.

Cordially yours,

Calvin J. Cotrell
Specialist

CJC/sl
Enclosures

IN COOPERATION WITH THE DIVISION OF ADULT AND VOCATIONAL RESEARCH, UNITED STATES OFFICE OF EDUCATION

REQUEST FOR SELECTED ITEMS FOR USE IN NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Please send twelve (12) copies of:

1. State operating manual for vocational and technical education
2. Latest printed annual report on vocational and technical education
3. 1964-65 report to Washington on technical enrollments
4. Any available reports of school and community technical education surveys in the state
5. Any available special bulletins on technical education
6. Brief statements of any recent developments in technical education of special importance, such as new curriculums, new construction, etc.

NOTE: The above mentioned materials are needed by May 20, 1966. Please mail to:

Dr. Calvin J. Cotrell
The Center for Research and Leadership Development in Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Sent To: Twenty State Directors of Vocational Education

REQUEST FOR SELECTED ITEMS FOR USE IN NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Please provide the following:

1. Copies of latest available catalog
2. Lists of preferred textbooks by technical curriculum (Book list if printed)

NOTE: The above materials and information are needed by May 20, 1966. Please mail to:

Dr. Calvin J. Cotrell
The Center for Research and Leadership Development in Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Sent To: Sixty Technical Education Institutions

REQUEST FOR SELECTED ITEMS FOR USE IN NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Please provide the following:

1. Copies of latest available catalog
2. Lists of preferred textbooks by technical curriculum (Book list if printed)
3. Materials and information that are readily available concerning recently built physical plant
    a. Photograph of plant (in printed brochure)
    b. Floor plans of technical education laboratories (small size)
    c. Equipment lists of major items, by technical education laboratory

NOTE: The above materials and information are needed by May 20, 1966. Please mail to:

Dr. Calvin J. Cotrell
The Center for Research and Leadership Development in Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Sent To: Twenty Technical Education Institutions

APPENDIX E

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

PARTICIPANT SELF-APPRAISAL

DIRECTIONS: Appraise your knowledge of the following technical education topics by using the five point scale, 1 meaning "Do not feel knowledgeable at all" and 5 meaning "Feel very knowledgeable." Please circle the number which indicates how you feel about your knowledge of the topic.

	Do Not Feel Knowledgeable			Feel Very Knowledgeable	
Rationale and Need for Technical Education					
1. Present and future technician needs	1	2	3	4	5
2. Technician placement patterns	1	2	3	4	5
3. New occupations requiring technician level employees	1	2	3	4	5
4. Size of technician enrollments	1	2	3	4	5
5. Economic, social, and individual needs for technician education	1	2	3	4	5
Role of Technicians					
6. Difference between the "professional" and the technician	1	2	3	4	5
7. Various levels of technician training	1	2	3	4	5
8. Fields of the "work world" in which technicians are employed	1	2	3	4	5
9. The place of the technician in the occupational spectrum	1	2	3	4	5
10. The difference between the technician and a skilled employee	1	2	3	4	5
Administrative Structure of Technical Education Institutions					
11. The development and operation of state-wide plans for technical education	1	2	3	4	5

	Do Not Feel Knowledgeable			Feel Very Knowledgeable	
12. The relation of individual institutions to state master plans	1	2	3	4	5
13. The federal, state, and local relationships for technical education	1	2	3	4	5
14. Different organizational structures of local programs of technical education	1	2	3	4	5
15. Accreditation procedures for technical education	1	2	3	4	5
Description of the Technical Education Student					
16. Program variations necessary with different student age levels	1	2	3	4	5
17. Selection criteria for technical education students	1	2	3	4	5
18. Sources of students for technical education	1	2	3	4	5
19. Means of determining the number of potential students	1	2	3	4	5
20. Desirable recruiting practices	1	2	3	4	5
Program Patterns and Curriculum Development					
21. Interrelationships of laboratory and shop courses with science and mathematics	1	2	3	4	5
22. The use of advisory committees in planning technical programs	1	2	3	4	5
23. The cluster approach in curriculum development	1	2	3	4	5
24. Curricula for the various offerings in technical education	1	2	3	4	5
25. Steps in curriculum development through occupational analysis	1	2	3	4	5

	Do Not Feel Knowledgeable			Feel Very Knowledgeable	
Facilities and Equipment for Technical Education Programs					
26. Educational specifications	1	2	3	4	5
27. Building sites for technical education programs	1	2	3	4	5
28. Equipment requirements for various technical education programs	1	2	3	4	5
29. Modern media, aids, and equipment needs	1	2	3	4	5
30. Role of school staff in planning facilities and equipment	1	2	3	4	5
Financing Technical Education Programs					
31. Capital outlay for site, buildings and equipment	1	2	3	4	5
32. Cost per student per year	1	2	3	4	5
33. Financing patterns	1	2	3	4	5
34. Annual operating costs	1	2	3	4	5
35. Personnel costs	1	2	3	4	5
Staffing Technical Education Programs					
36. Necessary qualifications of instructional staff	1	2	3	4	5
37. Necessary qualifications of supervisory personnel	1	2	3	4	5
38. Various sources of personnel	1	2	3	4	5
39. Teacher recruitment procedures	1	2	3	4	5
40. Teacher selection criteria	1	2	3	4	5
Technical Education Supervision and Teacher Education					
41. Evaluation	1	2	3	4	5

		Do Not Feel Knowledgeable			Feel Very Knowledgeable	
42.	Curriculum improvement	1	2	3	4	5
43.	Accreditation	1	2	3	4	5
44.	Programs for developing teaching skills	1	2	3	4	5
45.	Programs for upgrading technical competence of instructors	1	2	3	4	5

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

PARTICIPANT EVALUATION OF MAJOR TOPICS

Topic____ Date____________

1. Indicate on the five point scale below your opinion concerning the value of the content and quality of the presentation. Circling 1 means you feel the content or presentation was "very poor," and circling 5 means you feel the content or presentation was "very good."

	Very Poor				Very Good
Content value	1	2	3	4	5
Presentation quality	1	2	3	4	5

2. What new concepts have you gained through the sessions on this topic?

3. What additional information would you have desired?

4. What changes would you suggest for sessions on a similar topic in the future?

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

EVALUATION OF MAJOR TOPICS BY INSTITUTE DIRECTORS

Topic ____

Consultant ____

1. What were the best features of this topic?

2. What were the least desirable features of this topic?

3. To what do you attribute the success in question #1?

4. What changes would have eliminated the undesirable features in question #2? (Or what changes would you suggest?)

____
Initials of Director
or Associate Director

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

PROBLEM

Assume you have been appointed head of technical education for a new school which is to be planned and built.

The following are given:

1. Six months lead time until you must begin operations.
2. The area produces 2,000 high school graduates per year.
3. The area has a population of 100,000.
4. The school will have both local and state financial support.
5. You are responsible for the technical education program.

Identify leadership tasks which will be your responsibility in getting the technical education program successfully started. Indicate your plan for implementation, both immediate and long range.

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

APPRAISAL OF THE PARTICIPANT BY INSTITUTE DIRECTORS

DIRECTIONS: By circling the appropriate number on the five point scale below, indicate your opinion concerning the leadership skills demonstrated by the participant through his involvement in the institute. In the scale, 1 means you feel the participant demonstrated "no leadership ability" and 5 means you feel the participant demonstrated "excellent leadership ability."

	No Leadership Ability				Excellent Leadership Ability
1. Communications ability	1	2	3	4	5
2. Quality and quantity of contributions made	1	2	3	4	5
3. Human relations ability demonstrated	1	2	3	4	5

COMMENTS: ____

____

____

____

____
Initials of Director
or Associate Director

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

PARTICIPANT'S PLANS AND OBJECTIVES

Participant's Plans for Implementation

Indicate below your plans for implementing what you have learned in this institute. Please include plans for making changes in your program as a result of the institute, or your plans for initiating and/or conducting leadership development activities when you return home.

Participant's Professional Objectives

What are your ultimate professional objectives for five and ten years from now? How will the information obtained in these institutes help you reach these objectives?

APPENDIX F

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

RECORDER-EVALUATOR INSTRUCTIONS

Duties of the Recorder

1. Collect 2 copies of each item distributed during the institute.
2. Keep a record of participant attendance.
3. Keep a record of items that come up in discussion which should be treated at some time during the institute. Discuss these items with the Institute Director.
4. Arrange to have pictures made of people and materials at the institute.
5. Tape record presentations when written copy is not available.
6. Prepare (or arrange for) a record of each presentation. The following should be included in the record:
   a. Topic
   b. The presenter
   c. Date
   d. The "high points" of the presentation
   e. Identification data on aids used, including the name, source, etc.
7. Prepare the final report for the institute and send it to The Center.
8. Send to The Center one copy of each paper and/or instructional aid collected during the institute.

Duties of the Evaluator

1. Distribute and collect all evaluation instruments.
2. Give the participants instructions concerning how to complete each evaluation instrument.
3. Tabulate topic evaluation results for use by Institute Director.
4. Summarize the topic evaluations and report to the Institute Director

Schedule and Procedures for the Evaluator

1. Obtain a roster of participants and assign a code number for each participant. Prepare a 3 x 5 card with the participant's name on one side and his personal code number on the reverse side. (Each evaluator will be given the range of numbers for his institute during the June 1 meeting.) A roster with the code numbers must accompany the materials sent to The Center.

2. Introduction. - During the first morning of the institute, the Institute Director should introduce the idea of evaluation, comment on the need for it, and clarify its purpose.

3. Give each participant the card with his name and personal code number. Ask that he keep the card and record this number on each evaluation form completed during the institute.

4. Pre-test. - (Participant Self-Appraisal). - The pre-test should be administered and collected Monday morning of the first week. This procedure should be followed:

    a. Distribute instruments, IBM answer cards and special pencils.

    b. Request each participant to write his code number in the space for "student number" on the front of the IBM answer card. The number 1 should also be written in the space for "sequence number."

    c. Read the directions, and clarify any questions. Participants will not write on the self-appraisal booklet. Their answers will be placed on the IBM answer cards.

    d. Allow participants to begin.

    e. Collect the completed cards and test booklets. (Note: Check that each card has a participant code number and that there are no omissions or duplications of numbers recorded in the code range assigned.)

5. Topic Evaluations by Participants, Institute Directors and Associate Directors. - After the completion of each major topic, administer and collect topic evaluations. There will usually be no more than 12 major topics covered in each institute. This is the procedure which should be followed:

    a. Distribute instruments. (Note: There are 2 different forms, i.e. participant's (white) and Director's (green).

b. Ask the participants to put their code numbers in the upper right hand corner of the page and write in the title of the topic.

c. Read the directions, and ask if there are any questions.

d. Allow participants to begin.

e. Collect completed instruments being certain that each has a code number. (Note: This will become a routine procedure after the first 2 or 3 topics.)

6. Problem. - Remind the Director to introduce the problem as part of the instructional program. This should not be identified as part of the evaluation procedure. The Director will collect the papers with names on each. (The Directors have agreed to introduce the problem by the end of the first week.)

7. Participant's Plans and Objectives. - During the second week, Tuesday or Wednesday, administer this instrument. These are the procedures to be followed:

   a. Distribute the instruments.

   b. Ask the participants to put their code number in the upper right hand corner. Also ask them to record their present position title, institution and years in this position.

   c. Read the questions, and ask if there are questions from the participants concerning these items.

   d. Ask the participants to complete this instrument at their leisure and to return it on Thursday when it is requested.

   e. Collect completed instruments on Thursday.

8. Re-examination of Topic Evaluations. - On Thursday of the second week, the topic evaluations which have been completed by the participants should be re-examined and modified. This is the procedure:

   a. Distribute to each participant the topic evaluation forms which he has completed during the institute.

   b. Ask the participants to review their comments relative to Item #3.

   c. Collect all the forms.

9. Problem. - Remind the Director to collect the problem solution from the participants no later than Thursday of the second week.

10. Post-test. (Participant Self-Appraisal). - This test should be administered on the last day. The instructions are the same as the pre-test except the "sequence number" of 2 must be placed after the code number on the front of the IBM answer card.

11. Ask the Institute Director to evaluate each participant using the green form - Appraisal of the Participant by Institute Directors.

12. Collect all evaluation instruments and materials and send them to The Center with a copy of the roster indicating the assigned participant code numbers.

APPENDIX G

COLORADO STATE UNIVERSITY
INSTITUTE PROGRAM

Sunday, July 10

4:00 p.m.-6:00 p.m.
Registration, Parmelee Hall

5:30 p.m.-6:30 p.m.
Buffet, Parmelee Hall

Monday, July 11 - Student Center, Rooms 202-204

8:30 a.m. Orientation Session

Welcome: Dr. Courtlyn Hotchkiss, Dean Summer Session
Get acquainted: Mr. H. L. Benson, Professor and Head, Department of Vocational Education
Campus orientation: Mr. H. L. Benson
Plan of the institute: Mr. F. J. Konecny, Dean, James Connally Technical Institute, and Mr. Theodore Koschler, Vice President, Miami-Dade County Junior College
The Role and Responsibility of Leaders: Dr. J. Stanley Ahmann, Vice President

10:30 Coffee Break

10:50 Pre-test evaluation: Mr. Jack Annan, Recorder-Evaluator and Instructor, Department of Agriculture, Northeastern Junior College, Sterling, Colorado

Lunch

1:30 p.m. Rationale and Need for Technical Education: Dr. Lynn A. Emerson, Professor Emeritus, Cornell University, and Consultant--Technical Education, and Mr. R. M. Knoebel, Acting Assistant Director, State Vocational Service Branch, Division of Vocational and Technical Education, U. S. Office of Education

Studies and surveys

1. Labor market trends
2. Population growth trends
3. Changes in occupations
4. Changes in sources of technicians

3:00 Coffee Break

3:20 5. Changes in school attendance
6. Assessment of present and future needs

3:30 Discussion. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignments and Dismissal

7:00 Staff Conference

Tuesday, July 12 - Student Center, Rooms 202-204

8:30 a.m. Rationale and Need for Technical Education (Continued): Dr. Lynn A. Emerson, Mr. R. M. Knoebel, and Mr. Dan Mirich, Department of Personnel, Hewlett-Packard Company, Loveland, Colorado

7. The rate of change in technology
8. Technician placement studies
9. Social, economic and sociological need of the individual for training and employment
10. The employer's need for technicians
11. The shift in educational emphasis from doing to thinking and feeling.

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Description of the Technical Education Student: Dr. Robert McKee, President, Northern Virginia Technical College, Baileys Crossroads, Virginia

A. Economic needs in individuals
B. Persons who can profit from technical education
C. Programs to meet needs of various age groups
D. Criteria for selecting students
E. Sources of students

3:00 Coffee Break

3.20 Discussion Groups. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignment and Dismissal

7:30 Staff Conference and Committee Work

Wednesday, July 13 - Student Center, Rooms 202-204

8:30 a.m. Administrative Structure of Technical Education Institutes: Dr. Robert McKee

A. Statewide patterns
B. Public schools

    1. Community colleges
    2. Technical institutes
    3. Area schools
    4. Four-year colleges

C. Private schools
D. Military services
E. Correspondence schools
F. Other governmental agencies

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 Facilities and Equipment for Technical Programs: Dr. Robert McKee and Mr. John Fortin, Administrative Associate, Dunwoody Institute, Minneapolis, Minnesota

A. The site

    1. Use of advisory committees
    2. Selection
    3. Location

B. Building plans
C. Provisions for modern teaching
D. Equipment
E. Illumination

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignment and Dismissal

7:00 Staff Conferences, Committee, and Library Work

Thursday, July 14 - Student Center, Rooms 202-204

8:30 a.m. Facilities and Equipment for Technical Programs (Continued): Dr. Robert L. McKee and Mr. John Fortin

F. Development of laboratories
G. Conference facilities
H. Library
I. Cafeteria
J. Supplies
K. Anticipatory planning

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Program Patterns and Curriculum Development: Mr. Ivan E. Valentine, Assistant Director, Department of Community Colleges, Raleigh, North Carolina

A. Flexibility
B. Diversity
C. Broad cluster training approach to curricula
D. Comprehensiveness

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignment and Dismissal

Friday, July 15 - Student Center, Rooms 202-204

8:30 a.m. Program Patterns and Curriculum Development (Continued) Messrs. Valentine and Fortin

E. Continuous reexamination of purpose
F. Continuing change of program with new knowledge
G. Community oriented program
H. Exploring community resources

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Program Patterns and Curriculum Development (Continued): Messrs. Valentine and Fortin

I. Student appeal
J. Response to needs of people
K. Anticipation of future needs

  1. New products
  2. New processes

L. Continuing education

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Assignment and Dismissal

7:00 Staff Conference and Library Work

Monday, July 18 - National Bureau of Standards, Boulder, Colorado

8:00 a.m. Bus Departure

Tuesday, July 19 - Student Center, Rooms 202-204

8:30 a.m. Staffing Technical Education: Dr. Joseph T. Nerden, Professor, Department of Industrial and Technical Education, North Carolina State University

A. Types of personnel

  1. Technical teachers
  2. Mathematics and science teachers
  3. General education teachers
  4. Auxiliary course teachers
  5. Librarians
  6. Supervisors
  7. Administrators

B. Qualifications for each type of staff member

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Staffing Technical Education (Continued): Dr. Joseph T. Nerden

- C. Functions of Administration and Supervisors
- D. Sources of supply for staff
    - 1. Recruitment
    - 2. Selection

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Assignments and Dismissal

7:00 Staff Conference

Wednesday, July 20 - Student Center, Rooms 202-204

8:30 a.m. Financing Technical Education Programs: Dr. Joseph T. Nerden

- A. Capital outlay
    - 1. Plant
    - 2. Equipment
    - 3. Sites
        - a. Free sites
        - b. Selected sites
- B. Operating costs

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Financing Technical Education Programs (Continued): Dr. Joseph T. Nerden

- C. Comparative costs
    - 1. Personnel services
    - 2. Overhead
    - 3. Room utilization
- D. Financing patterns

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Assignment and Dismissal

7:00 Staff Conference

Thursday, July 21 - Student Center, Rooms 202-204

8:30 a.m. Supervision and In-Service Teacher Education: Dr. Jerry S. Dobrovolny, Professor and Head, Department of General Engineering, University of Illinois

A. Personnel services
B. Effective use of facilities
C. Curriculum improvement

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Supervision and In-Service Teacher Education (Continued): Dr. Jerry S. Dobrovolny

D. Effective techniques of evaluation
E. Accreditation

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Dismissal

6:30 Banquet - East Ballroom of Student Center

Friday, July 22 - Student Center, Rooms 202-204

8:30 a.m. Establishing Research and Development Needs: Messrs. Koschler, Konecny, Dobrovolny, et al.

A. The role of research and development
B. Utilization of research in administration of technical education
C. Identification of critical research and development problems

10:30 Coffee Break

11:00 Evaluation and Summary

12:00 Noon Dismissal and Close of Sessions

OKLAHOMA STATE UNIVERSITY
INSTITUTE PROGRAM

Monday, June 6 - Circus Room, Student Union

8:30 a.m. Registration

Welcome: Dr. Robert B. Kamm, Vice President, Oklahoma State University
Introduction of Participants
Purpose and Objectives of the Institute
Institute Procedures

10:30 Review of Developments and Problems in the Several States by Participants

11:30 Lunch

1:00 p.m. Elements of Long-Range Planning in Education. Circus Room

Discussion. Reporting Groups--Topic No. 1

Group A:	Group B:
L. Arueste, Chairman	E. Archer, Chairman
M. Gregg	L. Harrell
J. Arnold	J. Guthrie
S. Bowlan	H. Rahn

Tuesday, June 7 - Circus Room

8:30 a.m. The Technician Occupations: Dr. Lynn A. Emerson, Professor Emeritus, Cornell University, and Consultant--Technical Education

10:30 Discussion

11:30 Lunch

1:00 p.m. Group A - Patterns of Training - South Tower, Student Union

Group B - Description of a Technical Program - Room 128 Industrial Building

2:15 Break

2:45 Group A - Description of a Technical Program - Room 128 Industrial Building

Group B - Patterns of Training - South Tower, Student Union

6:00 Get Acquainted Picnic. Reporting Groups--Topic No. 2
Technical Occupations and Patterns of Training

Group A:
R. Bodenhamer, Co-Chairman
P. Hull
A. Batten
R. Dow

Group B:
G. Hardy, Chairman
L. McKinney
R. Roy
B. Laman

Wednesday, June 8

8:30 a.m. Group A - Program Planning - North Tower, Student Union

Group B - Identifying and Publicizing Program Needs - South Tower, Student Union

11:30 Lunch

1:00 p.m. Group A - Identifying and Publicizing Program Needs - South Tower, Student Union

Group B - Program Planning - North Tower, Student Union

Reporting Groups--Topic No. 3
Identifying and Publicizing Program Needs
--Topic No. 4
Program Planning

Group A:
L. Cunningham, Co-Chairman
W. Putas
S. Bowlan
L. Heiny

Group B:
L. Harrell, Chairman
G. Polak
M. Severson
A. Potthast

Thursday, June 9

8:30 a.m. Visit to the O. S. U. Technical Institute

Metals Technology
Fire Protection Technology
Nuclear Technology

11:30 Lunch

1:00 p.m. Curriculum Design - Groups A and B - Circus Room

2:45 Discussion. Reporting Groups--Topic No. 5
Group A - North Tower
Group B - South Tower

Group A:
M. Gregg, Chairman
B. Hanning
R. Dow
P. Komatz

Group B:
B. Laman, Co-Chairman
B. Powers
H. Rahn
M. Sykes

Friday, June 10

8:30 a.m.	Group A - Science in the Technical Program - South Tower
	Group B - Mathematics in the Technical Program - North Tower
11:30	Lunch
1:00 p.m.	Group A - Mathematics in the Technical Program - North Tower
	Group B - Science in the Technical Program - South Tower

Reporting Groups--Topic No. 6

Group A:	Group B:
P. Hull, Co-Chairman	W. Steige, Chairman
P. Braden	H. Reed
J. Godsey	R. Roy
R. Moe	H. Taylor

Reporting Groups--Topic No. 7

Group A:	Group B:
E. Jaeger, Chairman	A. Potthast, Co-Chairman
L. Arueste	J. Salvatore
L. Heiny	R. Scott
R. Paap	J. Guthrie

Saturday, June 11 - Field Trip

Monday, June 13

8:30 a.m.	Curriculum Development - Groups A and B - Circus Room Work Session
11:30	Lunch
1:00 p.m.	The Vocational-Technical School - Groups A and B - Circus Room

Tuesday, June 14

8:30 a.m.	Staffing the Technical Program - Groups A and B - Circus Room
10:30	Discussion
11:30	Lunch
1:00 p.m.	Teacher Education - Groups A and B - Circus Room
2:45	Discussion

Reporting Groups--Topic No. 8

Group A:
W. Putas, Co-Chairman
R. Bodenhamer
P. Komatz
J. Arnold

Group B:
B. Powers, Chairman
E. Archer
M. Severson
L. McKinney

Wednesday, June 15

8:30 a.m. Technical Education Facilities - Groups A and B - Circus Room

10:30 Discussion

1:00 p.m. Work Session. Reporting Groups--Topic No. 9
Group A - North Tower
Group B - South Tower

Group A:
B. Hanning, Chairman
R. Moe
A. Batten
N. Frigiola

Group B:
H. Reed, Co-Chairman
G. Hardy
M. Sykes
R. Lano

Thursday, June 16

8:30 a.m. Financing the Technical Education Program - Groups A and B - Circus Room

10:30 Duscussion

11:30 Lunch

1:00 p.m Research in Vocational and Technical Education - Groups A and B - Circus Room

2:45 Discussion
Reporting Groups - Topic No. 10

Group A:
P. Braden, Co-Chairman
R. Paap
L. Cunningham
C. Beeman

Group B:
J. Salvatore, Chairman
H. Taylor
G. Polak
J. Harmon

Friday, June 17

8:30 a.m. Professional Organizations and Accreditation - Groups A and B - Circus Room

10:30 Evaluation
Summary of Institute

RUTGERS - THE STATE UNIVERSITY
INSTITUTE PROGRAM

Sunday, June 5

p.m. Registration. House No. 30, Gibbons Campus

Monday, June 6

a.m. Registration. Douglass College

8:45 Opening Session. Room 130--Hickman Hall. General Chairman Dr. Milton E. Larson, Institute Director and Adviser, Department of Vocational-Technical Education

A. Welcome: Dr. Carl Schaefer, Chairman, Department of Vocational-Technical Education
B. Remarks: Dr. John J. O'Neill, Dean, Graduate School of Education, and Dr. Robert M. Worthington, Assistant Commissioner of Education, State of New Jersey
C. Introductions and Announcements

9:15 The Leadership Role: Dr. Ralph Wenrich, Professor of Vocational Education and Practical Arts, The University of Michigan

Opportunities
Responsibilities
Needs

10:30 Coffee Break

10:45 Course Orientation and Organization

11:30 Lunch - Neilson Dining Hall

1:00 p.m. The Technician and His Job: Dr. Ralph Wenrich

2:30 Group Discussions - Rooms 128 and 129

4:30 Adjourn

Note: Unless otherwise indicated, major presentations will be in Room 130 with group discussions in Rooms 128 and 129 of Hickman Hall.

Meals will be served in Neilson Dining Hall according to the following schedule:

Breakfast 7:30 - 8:00 a.m. (Close observance
Lunch 11:30 - 12:00 (of the schedule is
Dinner 5:30 - 6:00 p.m. (mandatory

Meals will be served during the weekend June 11 and 12.

Tuesday, June 7 - Douglass College Campus, Hickman Hall

8:45 a.m. The Administrative Structure of Technical Education Institutes: Mr. John Henderson, Assistant for Two-Year College Programs, State University of New York at Albany

- Statewide patterns
- Public schools
  - Community colleges
  - Technical institutes
  - Area schools
  - Four-year colleges
- Private schools
- Military services
- Other governmental agencies
- Correspondence schools

10:00 Coffee Break

10:15 Group Discussions

11:30 Lunch

1:00 p.m. The Student in Programs of Technical Education: Mr. John Henderson

- Economic needs of individuals
- Persons who can profit from technical education
- Programs to meet needs of various age groups
- Criteria for selecting students
- Sources of students

2:30 Coffee Break

2:45 Group Discussions

4:30 Adjourn

7:30 Interest Group Discussions - Rooms to be assigned

Wednesday, June 8 - Douglass College Campus, Hickman Hall

8:45 a.m. The Rationale and Need for Technical Education: Mr. Abraham J. Berman, Principal Statistician, Division of Research and Statistics, New York State Department of Labor

- Labor market trends
- Population trends
- Changes in occupations
- Changes in school attendance
- Changes in technology
- Changes in sources of technicians
- Employers' needs for technicians
- Assessment of present and future needs

10:30 Coffee Break

10:45 Group Discussions

11:30 Lunch

1:00 p.m. Effective Guidance Activities and Programs for Technical Education: Dr. J. Henry Zanzalari, Assistant Director Middlesex County Vocational and Technical High Schools, New Brunswick, New Jersey

- Communication
- Decision making
- Appraisal
- Other

2:15 Coffee Break

2:30 Group Discussion

3:30 Interest Group Discussions

4:30 Adjourn

Thursday, June 9 - Field Study with Presentations - Broome Technical Community College, Binghamton, New York

6:30 a.m. Bus Departure from Douglass Campus

11:45 Broome Technical Community College--Staff

- Orientation
- Programs
- Students, faculty, etc.

12:30 p.m. Lunch

1:30 Tour of Technical Education Facilities--Broome Technical Community College--Staff

2:45 Coffee Break

3:00 Financing Technical Education
Broome Technical Community College--Staff

- Capital investment
  - Plant
  - Equipment
- Annual operating costs
  - Costs of different programs
  - Other cost factors

Facilities Planning, Construction, and Financing: Dr. Ellis Rowland, Director of Community College Facilities Planning, State University of New York at Albany

- Capital outlay
  - Plant
  - Equipment
  - Site selection
    - Free vs. selected site
- Other

Operating Costs for Technical Education Programs: Dr. LeRoy V. Good, President, Monroe Community College, Rochester, New York

- Operational finance
  - Budgeting and accounting
  - Personnel costs
- Efficient level of operation
  - Teacher load
  - Room utilization
  - Teachers per unit student group
- Supply and overhead
  - Management
- Financing patterns

Funds for Technical Education: Mr. Henry Glendenning, Vice President, Butcher & Sherrerd, Philadelphia, Pennsylvania

- Sources of funds
  - Public
  - Private
- Factors in financial planning
- Other

Friday, June 10 - Douglass College Campus, Hickman Hall

8:45 a.m. Program Patterns: Dr. Lynn A. Emerson, Professor Emeritus, Cornell University, and Consultant, Technical Education

- Balanced curriculum for technical education
  - High school and post-high school level
  - Interrelationships of laboratory and shop courses with science and math
- Curriculum development
  - Balance for the curriculum
  - Broad program plans
  - Broad course of study approach
  - Class approach

10:00 Coffee Break

10:15 Program Patterns (Continued): Dr. Lynn A. Emerson

11:30 Lunch

1:00 p.m. Group Discussions

3:00 Coffee Break

3:15 Interest Group Discussions

4:30 Adjourn

Note: No formal program or presentation is planned for the weekend, June 11 and 12. However, consideration will be given to planning weekend activities if the institute participants are interested. If you desire to participate in such activities (tours, picnics, etc.) contact the Director by Tuesday, June 7.

Monday, June 13 - Field Study with Presentations - Norwalk Technical Institute, Norwalk, Connecticut

6:30 a.m. Bus Departure from Douglass Campus

9:30 Coffee Break

9:45 Norwalk Technical Institute. Mr. Frank Juszli, Director

Orientation	Students and faculty
Programs	Introduction to facilities

10:30 Tour of Facilities--Staff

12:15 p.m. Lunch

1:15 Facilities and Equipment for Technical Education: Mr. Lucian Lombardi, Chief, Bureau of Technical Institutes, Hartford, Connecticut

Topics related to:
- Site
- Planning facilities
  - Advanced planning
  - Construction problems
  - Construction costs
  - Planning for modern media and aids
- Equipment
- Other

3:00 Coffee Break

5:00 Dinner--Junior's Restaurant, Flatbush Avenue, Brooklyn (or similar facility in area)

6:00 Brooklyn Technical High School

Orientation: Mr. Frank Stewart, Principal

Technical education in high schools
- Programs
- Students and faculty

7:00 Tour of Brooklyn Technical High School--Staff

9:00 Arrival at Douglass Campus

Tuesday, June 14 - Douglass College Campus, Hickman Hall

8:45 a.m. Staffing Technical Education Programs: Mr. Paul K. Weatherly, Assistant Director, State Committee for Technical Education, Columbia, South Carolina

Personnel required
- Technical teachers
- Mathematics and science teachers
- General education teachers
- Auxiliary course teachers
- Librarians
- Supervisors
- Administrators
- Other

Qualifications for each type of staff member
Functions of administrators and supervisors
Sources of staff
- Recruitment suggestions
- Selection consideration

10:00 Coffee Break

10:15 Staffing Technical Education Programs (Continued): Mr. Paul K. Weatherly

11:30 Lunch

1:00 p.m. Group Discussion

3:00 Coffee Break

3:15 Interest Group Discussions

4:30 Adjourn

Wednesday, June 15 - Douglass College Campus, Hickman Hall

8:45 a.m. Program Patterns and Fundamental Knowledges: Dr. Lynn A. Emerson

Existing curricular patterns
Curricula for a high quality technical education program
Types of programs
    Coop programs
    Half-day programs
    Extended day programs
    Others

10:00 Coffee Break

10:15 Program Patterns and Fundamental Knowledges: Dr. Lynn A. Emerson (Continued)

11:30 Lunch

1:00 p.m. Group Discussion

3:00 Coffee Break

3:15 Interest Group Joint Session--Final Report

4:30 Adjourn

Thursday, June 16 - Douglass College Campus, Hickman Hall

8:45 a.m. Effective Technical Education: Dr. Robert Knoebel, Acting Assistant Director, State Vocational Service Branch, Division of Vocational and Technical Education, U. S. Office of Education

Shift in educational emphasis from doing to thinking plus doing
Social, economic, and psychological needs of individuals for training and employment
Placement of technicians - studies
Other

10:00 Coffee Break

10:15 Providing Public Information: Dr. Burr D. Coe, Director, Middlesex Vocational and Technical High Schools, New Brunswick, New Jersey

Public relations
    Building the program
Internal human relations
Use of advisory committees
Other

11:30 Lunch

1:00 p.m. Evaluation, Accreditation, and Integration of Concepts for Technical Education: Dr. Lynn A. Emerson

Effective use of facilities
Curriculum improvement
Other

2:15 Coffee Break

2:30 Professional Organizations: Panel

Dr. Burr D. Coe - American Technical Education Association
Miss Mary Ellis - American Vocational Association, Director of AVA Field Studies
Dr. William G. Shannon - American Association of Junior Colleges, Associate Executive Director
Dr. Elmer C. Easton - American Society for Engineering Education, Dean, College of Engineering, Rutgers - The State University

3:45 Adjourn

6:00 Banquet - Special Dining Room, Neilson Dining Hall, Douglass College Campus

7:00 Considerations in Planning and Organizing a New Institution Offering Technical Education: Dr. Robert L. McKee, President Northern Virginia Technical College, Baileys Crossroads, Virginia, and Dr. Frank Chambers, President, Middlesex County College, Edison, New Jersey

Friday, June 17 - Douglass College Campus, Hickman Hall

8:45 a.m. Integration of Concepts and Summary: Dr. Lynn A. Emerson and Dr. Milton E. Larson and Staff

- Research in technical education
  - Role
  - Utilization
- Materials relating to technical education
  - Sources
- Institute summary
- Institute comments
- Award to participants

10:00 Coffee Break

10:15 Integration of Concepts and Summary (Continued)

11:30 Lunch

UNIVERSITY OF FLORIDA
INSTITUTE PROGRAM

Sunday, June 5

p.m. Registration, College of Education, Norman Hall

Monday, June 6

8:45 a.m. Opening Session, Room 166, Norman Hall

Welcome: Dr. Kimball Wiles, Dean of the College of Education

Orientation and Plan of the Institute: Dr. E. L. Kurth, Institute Director and Associate Professor, College of Education

Introductions of Assistants and Recorder: Dr. Fred Thornton, Associate Director and Supervisor of Mechanical Training, Tennessee Eastman Corporation

A State Role in Technical Education: Dr. Carl Proehl, Newly Appointed State Director of Vocational and Technical Education, and Dr. Walter R. Williams, Jr., Florida State Department of Education

The Leadership Role: Dr. Robert R. Wiegman, Assistant Dean, College of Education

10:45 Coffee Break

11:00 The Institute Recorder and Plan of Procedure, E. B. Moore, Institute Staff Recorder-Evaluator

12:00 Noon Lunch. Florida Room, Norman Hall

1:30 p.m. The Technician and His Job: Dr. Fred Thornton

2:30 Group Discussions. Drs. E. L. Kurth and Fred Thornton

2:45 Coffee Break

3:00 Small Group Discussions. Room 158--Institute Staff
Room 166

4:00 Group Reports. Room 166--Recorders

4:30 Adjourn

7:30	Interest Group Discussions. Rooms 158 and 166 open and reference materials available for examination
8:00	Staff Conference. Room 262, Norman Hall

Tuesday, June 7 - Room 166, College of Education, Norman Hall

8:00 a.m.	Staff Planning
8:45	The Administrative Structure for Technical Education: Dr. Harold Matthews, Dean, Vocational-Technical Education, Jackson Community College
Topics:	Statewide patterns Public schools Community colleges Technical institutes Area vocational technical centers Four-year colleges Military services Governmental agencies Correspondence schools
10:30	Coffee Break
10:45	Group Discussions. Rooms 158 and 166, Institute Staff
12:00 Noon	Lunch
1:00 p.m.	The Student in Programs of Technical Education: Dr. William W. Purkey, Assistant Professor, College of Education
Topics:	Social, Psychological and Economic Needs of: a. High school students b. Dropouts with work experience c. Employed and unemployed adults
1:45	Large Group Discussions. Institute Staff
2:30	Coffee Break
2:45	Small Group Discussions
Topics:	Student recruitment Student guidance and selection Student placement services Women as technical students
4:00	Group Reports. Room 166, Recorders
4:30	Adjourn

7:30	Interest Group Discussions. Staff Conference (if desired)

Wednesday, June 8 - Room 166, College of Education, Norman Hall

8:00 a.m.	Staff Planning
8:45	The Rationale and Need for Technical Education: Dr. E. L. Kurth
Topics:	Technological changes and impact on the labor force Population data and trends School enrollment data and trends Present and future needs National, state, and local surveys
10:30	Coffee Break
10:45	Group Discussions. Rooms 158 and 166, Institute Staff
Topics:	Methods and procedures used in various states to determine employment needs Enrollments and attrition rates Placement and follow-up Educational requirements
12:00 Noon	Lunch
1:00 p.m.	Local Power Structures and Educational Programs: Dr. Ralph Kimbrough, Professor of Educational Administration, College of Education
2:15	Coffee Break
2:30	Small Group Discussions. Rooms 158 and 166
Topics:	Group recommendations as to ways of initiating the process of change
4:00	Group Reports. Consensus of small group chairmen and recorders
4:30	Adjourn
7:30	Interest Group Discussions. Rooms 158 and 166, Staff Conference Room 262 (if desired)

Thursday, June 9 - Room 166, College of Education, Norman Hall

8:00 a.m.	Staff Planning
8:45	Program Planning and Curriculum Development: Dr. Richard Hagemeyer, President, Central Piedmont Community College, Charlotte, N. C.

Topics:	Steps in program planning Types of programs Curriculum development methods Determining curriculum content Curriculum content distribution
10:30	Coffee Break
Topics:	Curriculum fields other than engineering-related Development of courses of study Development of instructional materials
12:00 Noon	Lunch
1:00 p.m.	Group Discussions. Rooms 158 and 166, Institute Staff and Consultant
Topics:	Innovations in curriculum offerings Credentials awarded for technical education program completion
2:15	Coffee Break
2:30	Small Group Discussions. Rooms 158 and 166
4:00	Group Reports. Consensus of small group chairmen and recorders
4:30	Adjourn
7:30	Scheduled Session. "Implications of PERT (Program Evaluation, Review Technique) for Educational Planning": Mr. Earl Blekking, Professional Engineer and Research Assistant

Friday, June 10 - Field Trip to Martin-Marietta Plant at Orlando, Florida

8:45 a.m.	University of Florida buses leave Norman Hall
11:30	Lunch in or near Orlando
1:00 p.m.	Arrive at Martin-Marietta Plant
	The Martin Plant utilizes many technicians in the manufacture and assembly of its products ranging from appliance components to space vehicles. Because of the nature of the work done at this plant, special permission was necessary for the institute-participants to make this tour. Company officials will explain the nature of the work done by technicians. After a tour of the plant, the group will assemble again for a further question and answer period.

4:00 Anticipated departure time from the plant

6:30 Arrival at Gainesville

Saturday, June 11 and Sunday, June 12 - No program is planned. If the institute participants are interested in planning group activities, the Institute Staff will be glad to assist. They should make their interests known to the Director no later than Wednesday, June 8.

Monday, June 13 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Organization for Research in Technical Education: Dr. Kenneth Eaddy, Director, Research Coordinating Unit, Florida State Department of Education

Topics: Research Coordinating Units Organization and Functions
Procedures for working with other state organizations, local, and national groups

10:30 Coffee Break

10:45 Research Design

Topics: Experimental and surveys: State requirements and federal requirements for projects submitted under Title 4(c) of P. L. 88-210 — Dr. Kenneth Eaddy, Institute Staff and Consultants

12:00 Noon Lunch

1:00 p.m. Research in Human Resources Development: Dr. Joseph Champagne, Director, Division of Research, South Carolina State Committee for Technical Education

2:15 Coffee Break

2:30 Group Discussions. Identifying Research Needs, Organizing for Research, Utilizing Results: Institute Staff and Consultants

4:00 Group Reports

4:30 Adjourn

7:30 Interest Group Discussions. Staff Conference, Room 262 (if desired)

Tuesday, June 14 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Staffing the Technical Program: Dr. William Bolin, Dean, Division of Technical Education, St. Petersburg Junior College

Topics: Types of teachers by experience, educational qualifications, certification requirements, part-time and full-time

10:30 Coffee Break

10:45 Total Technical Program Staff Requirements

Topics: Science and mathematics teachers
Technical report writing
Technical illustration
Teacher-student ratios
Teacher load

12:00 Noon Lunch

1:00 p.m. Group Discussions. Institute Staff and Consultants

Topics: Recruitment practices
Teachers' salaries
Student personnel staff needs
Technical program guidance staff

2:30 Coffee Break

2:45 Small Group Discussions

4:00 Group Reports

4:30 Adjourn

7:30 Interest Group Discussions. Staff Conference, Room 262 (as requested)

Wednesday, June 15 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Program Accreditation: Dr. William Bolin

Topics: State accreditation
Regional Association Accreditation
Professional association (ECPD)
Special area or technician associations
Licensing agencies

10:30	Coffee Break
10:45	Group Discussions. Rooms 158 and 166, Institute Staff and Consultants
12:00 Noon	Lunch
1:00 p.m.	Technical Education Program Examples. Institute Staff and Consultants
Topics:	Illustrations from selected states Public information and public relations
2:30	Innovations in Teaching Technical Content. Institute Staff and Participants
Topics:	Teaching concepts
3:30	Small Group Discussions
4:00	Group Reports
4:30	Adjourn
7:30	Interest Group Discussions. Staff Conference, Room 262 (as requested)

Thursday, June 16 - Room 166, College of Education, Norman Hall

8:00 a.m.	Staff Planning
8:45	Financing Technical Education: Dr. T. W. Strickland, Director, Technical Education, State Department of Education
Topics:	Financial Provisions of P. L. 88-210 and other federal acts Policies concerning funding and reimbursement State-local patterns, tax bases Foundation support of programs
10:30	Coffee Break
10:45	Facilities and Equipment Planning: Dr. George Mehallis, Dean, Technical and Semi-Professional Studies, Miami-Dade Junior College
Topics:	Overall planning--site and plant Staff involvement in planning Building planning Instructional equipment
12:00 Noon	Lunch

1:00 p.m.	Facilities and Equipment Planning (continued)
2:15	Coffee Break
2:30	Group Discussions. Rooms 158 and 166. Dr. Mehallis, Institute Staff and Consultants
4:00	Group Reports. Room 166. Recorders
4:30	Adjourn
6:00	Dinner - Thomas Hotel

Friday, June 17 - Room 166, College of Education, Norman Hall

8:00 a.m.	Staff Planning
8:45	Technical Education and National Goals: Mr. Sam Geek, Field Representative in Technical Education, U. S. Office of Education, Charlottesville, Virginia
10:15	Coffee Break
10:30	Institute Summary. E. B. Moore, Institute Recorder
11:15	Institute Awards and Finale. Institute Staff
11:45	Lunch

UNIVERSITY OF ILLINOIS
INSTITUTE PROGRAM

Monday, June 6 - 261 Illini Union

9:00 a.m. Registration, Orientation, Introductions, Purposes of the Institute: Dr. M. Ray Karnes, Chairman, Department of Vocational and Technical Education, University of Illinois

Institute Procedures: Mr. Theodore Koschler, Vice President, Miami-Dade Junior College

Evaluation: Mr. James Gallagher, Assistant Professor of Industrial Education, University of Alberta

10:00 Rationale and Need for Technical Education--The Changing Manpower Scene: Dr. John Parrish, Professor of Economics, University of Illinois

Discussion: Mr. Richard Eno, Head, Mechanical Technology Department, Agricultural and Mechanical College, State University of New York, Canton

12:00 Noon Luncheon - 314 B Illini Union

Welcome: Dr. David D. Henry, President, University of Illinois

Mr. John Beaumont, Director of Vocational Education, Illinois State Board for Vocational Education and Rehabilitation

Dr. Rupert N. Evans, Dean, College of Education, University of Illinois

2:00 Rationale and Need for Technical Education - 261 Illini Union

Demand for Semi-Professional and Technical Manpower: Mr. Harry Bigelow, Executive Assistant, Reactor Physics Division, Argonne National Laboratory

The Technician, His Work and Education: Dr. Jerry Dobrovolny, Head, Department of General Engineering, University of Illinois

Dr. Walter J. Brooking, Curriculum Specialist, Division of Vocational and Technical Education, U. S. Office of Education

Tuesday, June 7 - 261 Illini Union

9:00 a.m. The Administrator as Educational Statesman. Establishing the Climate for Effective Instruction: Dr. David C. Epperson, Associate Professor of Higher Education, University of Illinois

Panel Discussion. Institute Participants

10:30 Coffee Break

10:45 The Leadership Function of the Administrator

Group A: Dr. Walter Bartz, Chief of Technical Education, Illinois State Board of Vocational Education and Rehabilitation

Group B: Mr. Theodore F. Koschler

1:30 p.m. Problems and Prospects in Technical Education: Dr. Harry Broudy, Professor of History and Philosophy of Education, University of Illinois

Discussion from floor

3:00 Coffee Break

3:15 Technical Education in the Years Ahead

Group A: Mr. Theodore F. Koschler

Group B: Mr. Richard Eno

Wednesday, June 8 - 261 Illini Union

9:00 a.m. Essential Characteristics of an Effective Program of Technical Education: Dr. M. Ray Karnes

Panel Discussion (Institute Participants): Mr. Richard Eno, Chairman

10:30 Coffee Break

10:45 Administrative Structure for Technical Education: Mr. Theodore Koschler, and Mr. Lee Hardwick, Field Representative, Regional Office, U. S. Office of Education, Dallas

1:30 p.m. Administrative Structure for Technical Education. Problem Assignment

Group A: Mr. Theodore Koschler

Group B: Mr. Richard Eno

Thursday, June 9 - 261 Illini Union

9:00 a.m. Bases for and Approaches to Curriculum Construction

Educational Planning to Meet Area and Selected Industry Needs: Mr. J. P. Lisack, Director, Office of Manpower Studies, Purdue University

Curricular Research: Dr. Robert M. Tomlinson, Assistant Professor, Department of Vocational and Technical Education, and Dr. William J. Schill, Associate Professor, Department of Vocational and Technical Education, University of Illinois

1:30 p.m. Professional Organizations, Accreditation Licensing: Dr. Elizabeth Simpson, Professor of Vocational and Technical Education, University of Illinois (President, American Vocational Association)

3:00 Group A: Mr. Richard Eno

Group B: Mr. Theodore Koschler

Friday, June 10 - 261 Illini Union

9:00 a.m. Recruitment, Selection and Preparation of Staff: Mr. Richard Eno

10:30 Coffee Break

10:45 Student Personnel Services: Counseling, Placement, and Follow-Up Discussion: (Panel Participants). Mr. Theodore Koschler, Chairman

1:30 p.m. Long-range Planning for Technical Education: Local, Regional, and State

Institutional Development: Mr. Theodore Koschler

Facilities for Technical Education: Mr. M. S. Cheever, Director, Plant Engineering, Bell Telephone Laboratories

3:00 Group A: Mr. Theodore Koschler

Group B: Mr. Richard Eno

Monday, June 13 - Field Trip: Argonne National Laboratory

6:30 a.m. Leave Sherman Hall

8:00 Breakfast: Manor Inn, Joliet

9:30 Orientation: Mr. A. B. Krisciunas, Director's Office, Argonne National Laboratory, and Mr. Harry Bigelow

5:00 p.m. Dinner: Manor Inn

Tuesday, June 14 - 2 Education Building

9:00 a.m. Financing Technical Education: Mr. Theodore Koschler

10:30 Coffee Break

10:45 Federal, State, and Local Sources of Support: Presentations by Participants. Mr. Richard Eno, Chairman

1:30 p.m. Evaluation of Technical Education: Dr. M. Ray Karnes

2:30 Group A: Mr. Richard Eno

Group B: Mr. Theodore Koschler

Wednesday, June 15 - 2 Education Building

9:00 a.m. The Technology of Instruction: Dr. Robert Lorenz, Head of Instructional Materials Division, Office of Instructional Resources, University of Illinois

Dr. Franklin Bouwsma, Director of Learning Resources, Miami-Dade Junior College

10:30 Field Trip: Coordinated Science Laboratory; Computer Controlled Instruction: Dr. Donald Bitzer, Research Associate Professor, Coordinated Science Laboratory, University of Illinois

1:30 p.m. Computer Services for Instruction and Institutional Management: Mr. Theodore Koschler

2:30 Work Session: Institute Participants

Group A: Mr. Theodore Koschler

Group B: Mr. Richard Eno

Thursday, June 16 - 2 Education Building

9:00 a.m. Problems and Issues in Technical Education: Participant Committee Reports

1:30 p.m. Problem Solution Discussion
Participant Reports

Friday, June 17 - 2 Education Building

9:00 a.m. Summary and Conclusions: Dr. M. Ray Karnes

10:00 Next Steps: Leadership Development in Technical Education

Discussion: Mr. Richard Eno, Chairman

11:00 Evaluation: Mr. James Gallagher

APPENDIX H

COLORADO STATE UNIVERSITY
INSTITUTE STAFF

Director

Herbert L. Benson	Professor and Head Department of Vocational Education Colorado State University

Co-Directors

F. J. Konecny	Dean James Connally Technical Institute
Theodore Koschler	Vice President Miami-Dade Junior College

Consultants

Lynn A. Emerson	Professor Emeritus Consultant Technical Education Cornell University
Ivan E. Valentine	Assistant Director Department of Community Colleges Raleigh, North Carolina
Robert M. Knoebel	Specialist Vocational-Technical Education United States Office of Education
Jerry S. Dobrovolny	Professor General Engineering University of Illinois
Joseph Nerden	Professor Technical Education North Carolina State University
Robert McKee	President Northern Virginia Technical College Baileys Crossroads, Virginia
John Fortin	Administrative Associate Dunwoody Institute Minneapolis, Minnesota
A. R. Bunger	Retired Executive Director Colorado State Board for Vocational Education Denver, Colorado

Supporting Staff

J. Stanley Ahmann	Vice President Colorado State University
Dan Mirich	Personnel Department Hewlett-Packard Company Loveland, Colorado
R. K. Britton	Director Adult Vocational-Technical Education Denver, Colorado
Courtlyn Hotchkiss	Dean Summer Session Colorado State University
James W. Wilson	Assistant Professor Trade and Technical Education Colorado State University
Jack Annan	Recorder-Evaluator Colorado State University

OKLAHOMA STATE UNIVERSITY
INSTITUTE STAFF

Director

Maurice W. Roney	Director School of Industrial Education Oklahoma State University

Assistant Director

A. J. Miller	Director Adult, Vocational, and Technical Education Oklahoma City Public Schools

Consultants

Carl S. Barber	Regional Representative U. S. Office of Education Kansas City, Missouri
Jerry S. Dobrovolny	Head General Engineering University of Illinois
R. L. Dyke	Business Manager Okmulgee State Tech
Alexander C. Ducat	Technical Education Specialist U. S. Office of Education
Roy W. Dugger	Vice President Texas A & M University
Lynn A. Emerson	Professor Emeritus Consultant Technical Education Cornell University
Rodney B. Faber	Head Electronics Department Technical Institute Oklahoma State University
Austin E. Fribance	Professor Mechanical Engineering Rochester Institute of Technology

Norville D. Griffin	Professor, Mathematics Department Technical Institute Oklahoma State University
Perry E. McNeill	Instructor, Electronics Department Technical Institute Oklahoma State University
J. Paschal Twyman	Assistant to Chancellor and Director of Research University of Missouri at St. Louis

Recorder-Evaluator

Scott E. Tuxhorn	Graduate Assistant School of Industrial Education Oklahoma State University

RUTGERS - THE STATE UNIVERSITY
INSTITUTE STAFF

Director

Milton E. Larson	Adviser Department of Vocational-Technical Education Rutgers - The State University

Associate Director

Angelo C. Gillie	Consultant Department of Community Colleges State Department of Education Hartford, Connecticut

Consultants

Abraham J. Berman	Principal Statistician Division of Research and Statistics New York State Department of Labor New York, New York
Frank Chambers	President Middlesex County College Edison, New Jersey
Burr D. Coe	Director Middlesex Vocational and Technical High Schools New Brunswick, New Jersey
Elmer C. Easton	Dean College of Engineering Rutgers - The State University
Mary Ellis	Director of AVA Field Studies American Association of Junior Colleges
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APPENDIX J

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES

IN

TECHNICAL EDUCATION

This is to certify that ______________________________ has successfully completed 60 clock hours in Technical Education Leadership Development.

These institutes were a cooperative effort of Colorado State University, Oklahoma State University, Rutgers - The State University, University of Florida, and the University of Illinois, coordinated by The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University. The institutes were conducted pursuant to a grant from the U.S. Office of Education, Department of Health, Education, and Welfare.

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____
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______________, 1966

APPENDIX K

SUMMARY OF CHI-SQUARE CALCULATIONS FOR COMBINATIONS OF SELECTED VARIABLES

Dependent Variables →

Independent Variables ↓	Percent of gain by participants	Topic evaluation (nine major topics) by participants	Participant's score on the assigned problem	Participant's plans and objectives	Participant's leadership abilities
Participant pre-test score	.001*	x	x	x	x
Institute	.050*	x	-	x	.001*
Participant's age	x	x	-	-	x
Service area of participants	x	-	x	x	-
Non-educational work experience classifications	x	-	-	x	x
Participant's institution classification	x	-	x	x	x
Participant's present position title	x	-	x	x	.010*
Years of service in present position	-	-	x	x	.050*
Professional education work experience in years	x	x	-	x	x
Number of years for non-educational work experience	x	-	-	-	x
Highest degree earned	x	x	x	x	x

x Chi-square was calculated but was not significant at .05 or higher level
- Chi-square was not calculated
* Chi-square was calculated and was significant at the indicated level

APPENDIX L

AGENDA

PROJECT EVALUATION CONFERENCE

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

October 10-11, 1966

MONDAY, OCTOBER 10

8:00 a.m.	Pick up conference participants	Staff
8:30	Welcome Remarks	Robert E. Taylor
8:45	Conference activities and expectations	C. J. Cotrell
9:00	Financial arrangements	C. J. Cotrell
9:45	Break	
10:00	Review of Instructional Materials	I. E. Valentine
10:45	Supplemental Instructional Materials	I. E. Valentine
11:45	Lunch (Jai Lai)	
1:15 p.m.	Directors' Evaluation of Instructional Activities by Topic	I. E. Valentine
2:00	Topic Evaluations by Participants	D. L. Larimore
3:00	Break	
3:15	Participant Selection and Gain	I. E. Valentine
4:00	Exploration of Interesting Relationships	D. L. Larimore
5:00	Return conference participants to motel	Staff
6:00	Dinner (Stouffer's)	
7:30	Review of Evaluation Techniques	C. J. Cotrell
8:30	Review of Consultants and Resource Persons	I. E. Valentine
9:30	Adjourn for evening	

TUESDAY, OCTOBER 11

8:00 a.m.	Pick up conference participants and luggage	Staff
8:30	Implications and recommendations for future institutes	A. J. Miller
10:00	Break	
10:15	Review of the Structure and Organization of the Project and Institutes	C. J. Cotrell
11:00	Follow-up of the 1966 Participants	I. E. Valentine
11:30	Lunch (Jai Lai)	
1:00 p.m.	Implications for other projects	C. J. Cotrell
2:00	Conference Summary	C. J. Cotrell
2:30	Adjourn	

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Project Evaluation Meeting

October 10-11, 1966

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The Ohio State University

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